DOCUMENT RESUME

ED 188 917 SE 031 424

AUTHOR Schwab, Judith L., Ed.
TITLE Social Sciences in Forestry, A Current Selected Bibliography, No. 52, June, 1980.
INSTITUTION Virginia Polytechnic Inst. and State Univ., Blacksburg. Div. of Forestry and Wildlife Resources.
SPONS AGENCY Forest Service (DOA), Washington, D.C.
PUB DATE Jun 80
NOTE 73p.: Not available in hard copy due to marginal legibility of original document.

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Conservation (Concept); *Environment; Environmental Influences; *Forestry; Interdisciplinary Approach; Lumber Industry; *Natural Resources; *Social Sciences; *Trees

ABSTRACT

Included in this annotated bibliography are entries on the role of the social sciences in the discipline of forestry. Four major categories of entries are included: (1) social science applied to forestry at large; (2) social science applied to forestry's productive agents; (3) social science applied to forest production; and (4) social science applied to forestry-related manufacturing. A detailed outline of the topical areas of the bibliography is also presented. (RE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED188917

SOCIAL SCIENCES in FORESTRY

A CURRENT SELECTED BIBLIOGRAPHY

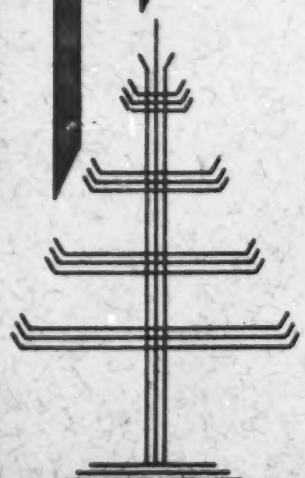
NO. 52 JUNE ,1980

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Anne W. Lauby

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."



JUDITH L. SCHWAB, EDITOR

DEPARTMENT OF FORESTRY
SCHOOL OF FORESTRY & WILDLIFE RESOURCES
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY
BLACKSBURG, VIRGINIA 24061

SE 031 424

SOCIAL SCIENCES IN FORESTRY

A CURRENT SELECTED BIBLIOGRAPHY

No. 52 June 1980

COOPERATORS ABROAD

Seppo Ervasti
Helsinki, Finland

Werner A. Kroth
Munich, West German Fed. Rep.

Benjamin Olivares P.
Valdivia, Chile

Israel Acosta Contreras
Bogota, Colombia

Nikolaos Stamou
Thessaloniki, Greece

Cho Eung Hyouk
Daejeon, Korea

J.D. Matthews
Aberdeen, Scotland

Chaw-Ming Chen
Taipei, Taiwan

Takuro Kishine
Kyoto, Japan

Ing Jiri Ruprich
Brno, Czechoslovakia

Christian Camous
Paris, France

Generous cooperation by the staff of the Carol M. Newman Library is acknowledged with thanks.

Judith L. Schwab
Editor

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
School of Forestry and Wildlife Resources
Department of Forestry
Blacksburg, Virginia 24061

With support from the United States Department of Agriculture, Forest Service.

SOCIAL SCIENCES IN FORESTRY

Subject-matter Classification Scheme

Note: This outline is regarded as working for the most part from the general to the specific. Material covering two or more sections of this outline is classified in the most general of these sections. Material which is classifiable in any of two or more sections is classified in the most specific of these sections. Asterisks mark those subjects which are not represented in this issue.

I SOCIAL SCIENCE APPLIED TO FORESTRY AT LARGE

A General principles, scope, content, method

B History, status, prospects of forestry in an area, society in an area (This section includes material on forest resources alone, as opposed to that on consumer or intermediate resources alone, for which see appropriate later sections.)

1 General
2 United States, Canada
3 Other north-temperate nations
4 South-temperate nations
5 Nations in lower latitudes

C Law, politics, policy, plan, program, and their administration

D Other influences

1 Taxation

a General
b Property, general and special; severance; lieu payment
c Income, inheritance, other

2 Valuation (See also IIIA5i)
*3 Insurance
*4 Social interest, value system, custom, folklore, culture
*5 Characteristics of the individual
6 Public relations, other

E Research (For research on specific topics, see those topics.)

F Professional and subprofessional affairs, education, employment of foresters

*G Social and economic development (See also IB)

H Environmental concern

II APPLIED TO FORESTRY'S PRODUCTIVE AGENTS
(See also the individual operation or type of output in III, IV, V.)

A Labor (Some material on labor will be found in IF, IV.)

1 General, employment, demand
2 Supply, union
3 Wage, cost hours, productivity, technology, training, return, benefit
4 Working condition, turnover, absenteeism, safety, insurance
*5 Characteristics of the worker

B Owner, ownership, manager,entrepreneur, holding (See also IC, IIC3.)

*1 General
2 Public

*a General
b Federal, central
c Regional, local

3 Private

a General
b Industrial
c Nonindustrial

C Land

*1 Context of supply, requirement, etc.
2 Description, use trend and status, interpreted description
3 Management, use prospect and plan, planning, marketing, tenure
*4 Research method

D Capital

1 General, investment, interest, finance
(For investment in forest production, see IIIE; for that in manufacturing, see IVA4.)
*2 Credit

III APPLIED TO FOREST PRODUCTION (See also IIB, C.)

A Production including nontimber commodities and services

1 General, supply, multipurpose management
2 Christmas trees, greens
3 Range and livestock
4 Naval stores, maple product
5 Recreation

a General
b Research
c Decision
d Demand, consumer, market
e Parks and wilderness area
*f Interpretation
g Aesthetic values

III APPLIED TO FOREST PRODUCTION (Continued)

A Production including nontimber commodities and services

5 Recreation
h Consumer activities such as driving, walking, camping, etc.
i Valuation

*6 Water, soil, watershed management, shelterbelts
7 Wildlife, hunting, fishing
8 Urban forestry

B Production chiefly of timber

1 General, supply
*2 Soil, site, site improvement
3 Tree regeneration and improvement; plantation
*4 Intermediate cutting, pruning, stand improvement
5 Harvest cutting, rotation, cutting cycle, stocking, regulation, allowable cut
(For harvesting treated as engineering, see IVB.)

C Roads, other forest-management transportation
(For transportation in harvesting, see IVB4; in manufacturing and marketing, see VD.)

D Damage and protection

1 From fire
2 Prescribed burning
3 From insects
4 From other agencies
(For water damage and soil erosion, see IIIA6.)

E Decision making, planning, investment, accounting, inventorying
(For investment in general, see IID1.)

IV APPLIED TO MANUFACTURING
(For material on forestry in general, including forest land resources, see IB.)

A The industry in general

1 Status and trend
*a General
b United States, Canada
c Other north-temperate nations
d South-temperate nations
e Nations in lower latitudes

*2 Directory
(Includes those covering specific branches of industry.)
3 History
*4 Decision making, planning, investment, accounting, inventorying (For a specific branch of industry, see that branch, "Operation of firm"; for investment in general, see IID1.)

IV APPLIED TO MANUFACTURING (Continued)

B Timber-harvesting industry
(Includes roundwood in general; for specific types, see IVC, "raw material." For harvesting as silviculture, see IIIB4, 5.)

1 Status and trend
2 Operation of firm
3 Utilization of the stand or tree
(For utilization of a specific product, see the branch of industry in question.)

*a General
b Logging residue and its disposal

4 Transportation (Skidding, yarding, loading, hauling to mill. For transportation in forest management, see IIIC; in manufacturing and marketing, see VD.)

C Wood-using industry

1 Lumber, allied product, pallet
*a Industry status and trend
*b Production, consumption, stocks, other statistics
(For sawtimber, see IB, IVB; for sawlogs, see IVC1d.)
c Operation of firm
*d Raw material

2 Pulp, paper, board

a Industry status and trend
*b Operation of firm
c Raw material
*d By-products

3 Veneer, plywood, panel

*a Industry status and trend
b Operation of firm
*c Raw material

4 Bark, chips, other residue
(See also IVB3 and the industry branch in question, "Operation of firm.")
*5 Pole, piling, post, mine timber
*6 Railway tie
7 Furniture
8 Charcoal, fuelwood, other combustibles; energy
9 Particleboard, hardboard, fibreboard, flakeboard
*10 Construction
*11 Other wood-using industry

D Other forest industry

*1 Decorative product
*2 Naval stores
*3 Maple product
*4 Other

V APPLIED TO MARKETING, TRADE, DEMAND FOR FOREST OUTPUT
(For marketing and demand for productive agents, see II.)

A Demand (See also 1F.)

*1 General; history of consumption; consumption-production relationships
2 Consumption or production prospect, goal, requirement, prediction (For material on short-term requirement, see the industry in question in IV, "Industry status and trend.")
*3 Consumer and his preference
(For material on specific forest resources, see also IIIA,B.)

B Market, marketing, trade, export, import

1 General
*2 Futures, hedging
3 Stumpage, log
4 Lumber, plywood, composition board
*5 Pulp, paper, paperboard

*a Product
b Raw material

*6 Other wood products
7 Christmas trees, greens
*8 Other type of output (See also IIC3.)

C Price, value

1 General
2 Stumpage, log
3 Other type of output
*4 Price reporting

*D Transportation (Includes transportation in manufacturing.)
(For transportation in forest management, see IIIC; in harvesting, see IVB4.)

209. 52 IA KING K.P.S. "Population and Social Pressures on the Land Base." The Forestry Chronicle, Vol. 55, No. 6 (1979), pages 237-241. Prepared for the Seventy-first Annual meeting of the Canadian Institute of Forestry, Jasper, Alberta, October 1-4, 1979.

210. 52 IB MCCLURE JOE P., COST NOEL D., KNIGHT HERBERT A. Multiresource Inventories-a new Concept for Forest Survey. USDA Forest Service Research Paper SE-191 (1979), 68 pages. A brief historical review shows why Forest Service Renewable Resources Units are capable of multiresource surveys. A practical approach to such surveys has been developed at the Southeastern Forest Exp. Station and demonstrated in South Carolina.

211. 52 IB1 CHENG C. World Forestry, a Book for Graduate Students. (1979) In Chinese. Forest resources; forest administration organization; harvesting; major forest products industries; forest products market and trade of Taiwan, mainland China, Japan, and Southeast Asian countries.

212. 52 IB1 HUGUET LOUIS. "Symbiosis of Agriculture and Forestry." Unasylva, Vol. 30, No. 122 (1978), pages 25-29.

213. 52 IB1 MANZINI E. "Food and Wood. Inequalities of Distribution and Problems of Survival." Italia Agricola, Vol. 116, No. 1 (1979), pages 84-121. In Italian. Present and probable future availability of world food and forest resources. World demand for wood forecast for the year 2000 can in theory be met, but inequalities in the natural distribution of forest resources and difficulties in transporting forest products will lead to acute shortages in some areas, with many tropical and subtropical countries without oil resources, facing an acute energy crisis.

214. 52 IB1 MOORE W.C., BONNER G.M. "Geographic Referencing of National Forestry Data." The Forestry Chronicle, Vol. 56, No. 1 (1980), pages 6-10. In English with a French abstract. National summaries of forest resource data must be improved in quality and quantity, and they must be more location-specific. To meet the last requirement, a simple, consistent, accurate and computer-compatible geographic referencing system is needed. The 10 km Universal Transverse Mercator (UTM) grid referencing system fills this need. Describes the concept and the use of the UTM grid system, and

outlines the proposed application to referencing forest resource data in Canada.

215. 52 IB1 PLOCHMANN RICHARD, LOEFFLER HANS. Timber as Raw Material in World Economy. Publications of the Federal Department of Nutrition, Agriculture, and Forestry - Agriculture as Applied Science. Vol. 220 (1979), 537 pages. In German, English and French copies in preparation. Report of the scientific congress at INTERFORST, Munich, 1978: International barter relations of wood and wood products and problems of international supply with wood (six papers); planning and prognosis in forestry for wood as a renewable resource and for increased use of technical harvesting methods (six papers); state, trends, developments, and problems in forest engineering (seven papers).

216. 52 IB1 WINDHORST HANS-WILHELM. Contributions to the Geography of Woodlands and Forestry. Wissenschaftliche Buchgesellschaft, Darmstadt. (1978), 448 pages. In German. Survey of geographical aspects of forestry on regional examples as functions of forests, yield, and position of woodlands in land use planning systems.

217. 52 IB2 BARRETT MICHAEL K., SHUPE DOROTHY G. Forest Area and Timber Resource Statistics for Southwestern Utah, 1975. USDA Forest Service Resource Bulletin INT-13 (1979), 24 pages. Land area, commercial timberland area, timber inventory, and growth and mortality data based on resources evaluation standards.

218. 52 IB2 BOYCE STEPHEN G., KNIGHT HERBERT A. Prospective Ingrowth of Southern Pine Beyond 1980. USDA Forest Service Research Paper SE-200 (1979), 48 pages. Between 1980 and 1990 the prospective ingrowth from two and four inch softwood trees to larger trees will be smaller than before 1974. this decline in rate of ingrowth will reduce the number of pines in the six inch and larger diameter classes, especially on the nonindustrial private forests. The most important action for increasing ingrowth and the future harvests of southern pines is to reestablish pines on lands when mature pines are harvested. Growing-stock volumes cannot be expected to increase until twenty to thirty years after the rate of regeneration is increased.

219. 52 IB2 CLAWSON MARION. "Renewable Resources in the Future of North America." The Forestry Chronicle, Vol. 55, No. 6 (1979), pages 225-228. Paper

prepared for the Seventy-first Annual meeting of the Canadian Institute of Forestry, Jasper, Alberta, October 2, 1979.

220. 52 IB2 HUGHES JEFF D.JR. "Louisiana Forestry in the '80's: the Challenge." Forests and People, Vol. 30, No. 1 (1980), pages 10-13, 40. Major factors which direct forest management policies, planning and activities in Louisiana: (1) changing timber uses, (2) government regulation, (3) land use conflicts, and (4) investment decisions.

221. 52 IB2 KNIGHT HERBERT A., MCCLURE JOE P. South Carolina's Forests. USDA Forest Service Resource Bulletin SE-51 (1979), 66 pages. The fifth inventory of South Carolina's forests was expanded to accommodate both timber and non-timber evaluations. This report presents the principal findings of the timber evaluation.

222. 52 IB2 MEI MARY A. Timber Resources of Northwest Oregon. USDA Forest Service Resource Bulletin PNW-82. (1979), 29 pages. Statistics from a 1976 timber resource inventory of 10 counties in northwest Oregon. Tables presented are of forest areas, timber volume, growth, mortality, and harvest.

223. 52 IB2 REED F.L.C. "Realizing the Economic Potential of Canada's Forest Resource." The Forestry Chronicle, Vol. 55, No. 6 (1979), pages 217-221. Covers: (1) economic role of forestry, (2) market opportunities, (3) timber supply constraints, (4) importance of goal setting, (5) implementing plans to achieve Canada's potential, (6) suggestions for the '80's.

224. 52 IB2 SHUPE DOROTHY G., BARRETT MICHAEL K. Forest Area and Timber Resource Statistics for Central Utah, 1976. USDA Forest Service Resource Bulletin INT-14 (1979), 3 pages. Land area, commercial timberland area, timber inventory, and growth and mortality data based on resources evaluation standards.

225. 52 IB2 SHUPE DOROTHY G., BARRETT MICHAEL K. Forest Area and Timber Resource Statistics for Southeastern Utah, 1975-1976. USDA Forest Service Bulletin INT-15. (1979), 23 pages. Land area, commercial timberland area, timber inventory, and growth and mortality data.

226. 52 IB3 CORBIE J. Forestry in Europe. London, U.K. European Conservative Group. (1979), 58 pages. Review of the role of forestry and forest industry in

Europe in relation to world supply and demand for timber and wood products, European policy for forestry development, and other land uses (agriculture, conservation, recreation, and rural communities).

227. 52 IB3 DAVIES JOHN. The Scottish Forester. Edinburgh: William Blackwood & Sons, Ltd. (1979), 69 pages. A short history of forestry in Scotland, particularly the revival since 1919 and its contribution to rural employment, wood using industry and the recreational needs of urban society.

228. 52 IB3 FUKUSHIMA YASUKI. "Forestry Improvement in Iwate Prefecture." Forest Economy, Vol. 32, No. 8 (1979), pages 1-9. In Japanese. Problems and effects of the forestry improvement project in Iwate Prefecture.

229. 52 IB3 HART C. Forestry in Europe. A Report to the Committee on Agriculture of the Council of Europe. U.K. Chenies, Coleford, Gloucestershire (1979), 45 pages. Excludes the USSR. World forests, and wood demand and supply; importance of wood; importance of forests to Europe; Europe's forest resource; need for Europe to review its forest policies; state of forestry and the timber industry in Europe; balancing Europe's wood demand and supply; increasing the private sector's contribution to wood production; meeting the social demands on forests; research; and forest policy and planning.

230. 52 IB3 LØVSETH T. "Some Results of the Fourth National Forest Survey." Norsk Skogbruk, No. 617 (1979), pages 10-11, 23. In Norwegian. Data from the 1976 survey which covered most of Norway's productive forest area.

231. 52 IB3 HAMMEN E. "German Working Party Conference on Current and Future Cooperation in Forestry." Berichte über Landwirtschaft, Vol. 57, No. 1 (1979), pages 141-151. In German. Forest policy; forest protection; development of forestry schools; research; trials in the Garpenberg, Sweden district; and management of Swedish state forests.

232. 52 IB3 MATSUI MITSUMA. "Forest Resources in Japan." Journal of Forestry, Vol. 78, No.2 (1980), pages 96-99. Japan's forests occupy 25 million hectares, two-thirds of the land area. Types range from subalpine to subtropical. Forty-one percent of total forest area is in national and other public holdings, and the rest is privately owned. Some 12.7

million hectares are considered suitable for plantations; of this, about 9 million have already been planted, chiefly in the last 25 years and largely to softwoods. As the plantations are still too young to harvest, Japan has had to increase imports, even though domestic consumption has slowed down.

233. 52 IB3 RANDERS JØRGEN, HØSTELAND JOHN E. "The Response to Mounting Pressure on the Scandinavian Forest Sector." The Forestry Chronicle, Vol. 55, No. 6 (1979), pages 229-236. Scandinavian forests are expected to yield high and increasing volumes of wood for a rapidly expanding forest products industry. They are increasingly expected to serve various recreation and wildlife needs. With the increasing threat of unemployment in the industrialized countries, the forests are looked to as a source of employment. Finally, there is a lurking question of extensive use of wood for energy purposes. The most tangible result of these pressures is increasingly intensive harvesting in those areas that are not set aside for conservation and recreation purposes.

234. 52 IB3 SHAPOSHNIKOVA L.A. "Changes in the Inventory and Study of the Forests of the USSR." Lesovedenie, No. 6 (1978), pages 33-39. In Russian with English summary. Analytical review of changes in the species composition and standing volume of the forests of the USSR since the first statistical inventory of the forest resources of the whole country, carried out in 1927. Data are tabulated from the inventories of 1936, 1949, 1956, 1961, 1966, and 1973. Results are discussed with special reference to improvements in the coverage and precision of inventory in Siberia and the Far Eastern regions of the USSR.

235. 52 IB3 STERN HORST, BIEDELRIETHER HANS, BURSCHEL PETER, PLOCHMANN RICHARD, SCHROEDER WOLFGANG, SCHULZ HORST. Rescue the Forest. Munich: Kindler Verlag GmbH. (1979), 393 pages. In German. A popular scientific book written by five German forest scientists and edited by an ecologist. It shows forests as an ecosystem and explains the problems of forestry especially in Germany from the silvicultural, historical, and economic point of view.

236. 52 IB3 VOLQUARDTS G. "The Forests and Forest Administration in Schleswig-Holstein." Forstarchiv, Vol. 50, No. 6 (1979), pages 109-112. In German

with an English summary. 141,000 ha of forests (9 percent of the land area) in Schleswig-Holstein in 1977. Private forests accounted for 53% of the total, state forests 34%, and corporate forests 13%. Increase in forest area to 188,000 ha is planned.

237. 52 IB3 Review of the Faculty of Forestry, University of Istanbul. Series A, Vol. 28, No. 1 (1976), 324 pages. In Turkish, German, French, and English. Topics: (1) Forest Management in the Region of Side (Antalya), (2) Mathematical Models for Tree and Stand Growth, (3) Evaluation of Some Competition Indexes for the Construction of Forest Stand Models and a New Competition Index, (4) Research on Cost and Management in the Turkish Ministry of Forestry, (5) A Tree Growth Simulation Model for Pinus Brutia, (6) A Study on the Stratificatin of Forest Stands for Forest Inventory.

238. 52 IB3 Statistical Yearbook for Nutrition, Agriculture, and Forestry in the Federal Republic of Germany - 1979. Landwirtschaftsverlag Muenster-Hiltrup. (1980), 410 pages. In German. More than 500 tables on forestry and forest industry in Germany and comprehensive data for the European communities.

239. 52 IB4 BACHELARD E.P. "The Future of the Forested Environment." Australian Forestry, Vol. 42, No. 2 (1979), pages 100-109. Fourth of a series of four public lectures given at the Australian national University, August, 1979, titled, "Australia's Forests: a Perspective on Environmental Management." Discusses: requirements for wood production, consequences of the self sufficiency policy, the need for conservation, resolution of conflicts, and public participation.

240. 52 IB4 CARRON L.T. "Forestry in the Australian Environment - the Background." Australian Forestry, Vol. 42, No. 2 (1979), pages 63-73. First of a series of four public lectures given at the Australian National University, August, 1979, titled, "Australia's Forests: A Perspective on Environmental Management." This lecture outlines the pattern of forestry in Australia from the past to the present.

241. 52 IB4 FLORENCE R.G. "Pathways of Planning." Australian Forestry, Vol. 42, No. 2 (1979), pages 87-99. Third of a series of four public lectures given at the Australian National University, August, 1979, titled, "Australia's Forests: a Perspective on Environmental Management." Discusses:

national policy; strategies, and public land use; planning at regional and local levels.

242. 52 IB4 GRANT R.K. "Managing the Regional Impact of Forest Development Programs." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 198-204. In situations where the regional development impact represents an important part of the total benefits of a project, some effort must be made to manage the project so as to increase the impact on regional employment and incomes. This will probably require some amendment of centralized purchasing policies, support for local servicing industries, and acceptance of seasonal employment.

243. 52 IB4 LEVACK H.H. "Future National Wood Supply." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 159-171. New Zealand's existing forest estate and land suitable for new afforestation are described and forest development alternatives are discussed in terms of possible eventual steady state yields and the times taken to reach them.

244. 52 IB4 SHEPHERD K.R. "Managing the Forested Environment." Australian Forestry, Vol. 42, No. 2 (1979), pages 74-86. Second of a series of four public lectures given at the Australian National University, August, 1979, titled, "Australia's Forests: a Perspective on Environmental Management." Discusses some of the problems of managing the forested environment considering the responsibility of obtaining most, if not all, man's material needs while remaining within the acceptable biological limits of the environment.

245. 52 IB5 DIEMER G. "Forest Management and Society in Tunisia, a Developing Country." Nederlands Basbouw Tijdschrift, Vol. 50, No. 10 (1978), pages 317-325. In Dutch with English summary. Economic, political, and social reasons for the decline in forest areas. Attitude of the French-trained forest service to forest-dwelling peasants is criticized. New approach is advocated to management of the relevant areas that would recognize but control the rights of local population (e.g., to forest grazing), and promote cooperation, fodder plantations, and secondary industries.

246. 52 IB5 LINDELL GARY E. "Forestry Development in Papua New Guinea." Journal of Forestry, Vol. 78, No. 3 (1980), pages 152-155. Forests cover nearly 90 million acres or about 80 percent of the land surface of Papua New Guinea. Although other

major countries of the region, such as Indonesia and Malaysia, have more forest area, Papua New Guinea's small population and domestic market have caused the government to encourage exports. Primarily because of slack international markets, the results to date have been disappointing and the government is modifying its policy.

247. 52 IB5 MISHRA J. "Agri-Silviculture - A System Holding Great Promise for Social Forestry in Bihar." The Indian Forester, Vol. 105, No. 9 (1979), pages 636-643. An ideal Indian village should be so positioned that villagers could procure all their necessary, daily forest materials within a radius of five miles. Over vast tracts of India such facilities do not exist. The rural needs of forest produce can only be met with tree and shrub plantations of suitable species.

248. 52 IB5 POULSEN GUNNAR. Man and Tree in Tropical Africa. International Development Research Center, Ottawa. (1978), 31 pages. Three essays concerning the role of the tree in tropical Africa, wood-fuel problems, and shifting cultivation.

249. 52 IB5 TROTMAN I.G. "Forest Management in Developing Countries - Experiences of a New Zealand Forester in Western Samoa." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 252-260. A national forest survey has recently been completed in Samoa. An understanding of the forest's ecology must be acquired and basic knowledge is required on the properties and uses of local wood. Lack of roads, mapping, power, port development, and shipping services, together with shortages in skilled staff, hinder forest utilization and management.

250. 52 IB5 WIERSUM K.F. "Forestry in Indonesia." Nederlands Basbouw Tijdschift, Vol. 50, No. 10 (1978), pages 301-316. In Dutch with English abstract. Describes the forests of Indonesia; the modern industrial sector, with its sustained yield management principles but frequent over exploitation; traditional forestry, agro-forestry systems, erosion and reforestation, and forest plantations.

251. 52 IB5 WILSON J. "Social Forestry in Tamil Nadu." The Indian Forester, Vol. 105, No. 10 (1979), pages 700-705. In English with summaries in Indian, German, and French. Social forestry is being implemented by three programs: (1) afforestation, (2) avenue planting, (3) sale of seedlings to the public.

252. 52 IC BAGNARESI U. "New Organizational and Operational Guidelines for the Management of Forest Resources." Montanaro d'Italia - Monti e Boschi, Vol. 30, No. 1 (1979), pages 59-65. In Italian. Decline of forestry in Italy is reflected in the progressive reduction in the annual cut from the national forests. this is attributed to apathy rather than to a planned long-term policy. Efforts by the central government to reduce the deficit of forest produce and improve economic conditions and employment prospects in highland areas, with special reference to recent legislation.

253. 52 IC BETOLAUD YVES, MEO JEAN. A Report on the Forest and Forest Products Policy. Report to the Ministers of Agriculture and Industry. Paris: Ministry of Agriculture. (1979), 41 pages. In French. The task force presents a diagnosis of the forest and forest products situation and suggests a series of institutional reforms and new policies aimed at reducing the trade deficit and improving private forest management.

254. 52 IC DANA SAMUEL TRASK, FAIRFAX SALLY K. Forest and Range Policy. (second edition) McGraw-Hill (1980) 496 pages. Examines forest and range policy in its historical context, while concentrating on the developments of the last twenty years. Revisions include coverage of the cumulative impact of the air, water, and pesticide regulations of the '70's; interpretive discussions of the legislation of the 1890's; and expanded sections on range management and policy, clearcutting, and the Wilderness Act.

255. 52 IC HEIKINHEIMO L.J. National Planning of Forestry and Forest Inventory in Finland. Vancouver, Canada: The Univ. of British Columbia (1978), 19 pages.

256. 52 IC KISHINE TAKURO "Simulation for Planning the Optimum Use of Forest Resources." Noringyomondaikenkyu, No. 56. (1979), pages 1-8. In Japanese. Using all the forest land in a single prefecture in Japan as a model, Kishine makes clear the theory and practice of simulating the optimum use of forest land as: forest land for commercial use, forest land for public utilities (e.g., flood prevention, water resources control, recreation, etc.), and forest land for both commercial use and public utilities.

257. 52 IC KISHINE TAKURO. "The Road to a Revolution in Forest Policy." Rinko-Joho, No. 28. (1979), pages 1-16. In Japanese. Summary of a special

lecture on the future forest policy of Japan consisting of: (1) preface, (2) problems of the present forest policy and the objectives of the future forest policy, (3) new forest policy-a revolution in forest policy, (4) conclusion.

258. 52 IC MULHERN TIMOTHY PRYOR. "The National Forest Management Act of 1976: A Critical Examination." Boston College Environmental Affairs Law Review, Vol. 7, No. 1 (1978), pages 99-126.

259. 52 IC NIESSLEIN ERWIN. Forest Property and Society - A Study Concerning the Social Restrictions of Ownership. Hamburg and Berlin: Verlag Paul Parey. (1980), 174 pages. In German. Conflicts arising from multiple-use forestry and proposed solutions. Position of forests and their functions in a social system are described and the legal frame for a regulation of property is located. By interpreting high court decisions and comparing other legal areas, standards are developed that allow a practical distinction between restictions of ownership and compulsory surrender of forest property. Possible solutions for a financial deconcentration of interests are discussed from the point of view of forest policy.

260. 52 IC ROZSNYAY Z., SCHULTE U. The Outline of the Reichs-Forest Act from 1942 and Its Effects on Recent Forest Legislation. Schriften aus der Forstlichen Fakultaet der Universitaet Goettingen und der Niedersaechsischen Forstlichen Versuchsanatalt, Vol. 60, (1978), 220 pages. In German. Trends in forest policy and development of forest legislation in Germany.

261. 52 IC APA Legislative Handbook. American Pulpwood Association, Washington, D.C. (1979), 49 pages. Issues of relevance to the pulpwood industry subject to impending federal legislation or regulation. Background information on legislative and regulatory processes, contact with congressmen and senators, and the coordination of forest industry policy issues.

262. 52 IC Forest Policy in the European Communities - Supplement 3/79 to the Bulletin of the European Communities. Office for Official Publications of the European Communities, Luxemburg. (1979), 51 pages. In German, also English, French, Italian, Dutch, and Danish copies available. Concise survey of the state of forestry within the member countries of the European Communities and principles and objectives for a joint forest policy for the European

Communities.

263. 52 ID1A Thirtieth Godesberger Conference on Taxation. Hauptverband der landwirtschaftlichen Buchstellen und Sachverständigen e.V., Bonn. (1979), 140 pages. In German. Six papers discussing problems and questions of taxation in agriculture and forestry.

264. 52 ID1B HARGREAVES L.A.JR. "Developments in Property Taxation." Forest Farmer, Vol. 39, No. 3 (1980), pages 69-72. Changes in property taxation, critical elements of property tax reform, harmonizing assessment law and practice, taxation of forest property, and current trends by state.

265. 52 ID1B SPENCER DAVID, BEAZLEY RONALD I. The Economic and Geographic Impact of National Forest Land on Counties in Southern Illinois. USDA Forest Service Research Paper NC-172. (1979), 27 pages. Analyzes the impact of the Shawnee National Forest on the socioeconomic structure of eleven counties in southern Illinois. Includes a factor analysis model as well as an assessment of tax losses to local government as a result of the National Forest.

266. 52 ID1C BRIGGS CHARLES W., CONDRELL WILLIAM K. "Tax Treatment for Timber Capital Gain and Loss." Forest Farmer, Vol. 39, No. 3 (1980), pages 73-82. Meaning and application of Section 631(a) and (b) of the Internal Revenue Code. Explanation of the subject of timber capital gains as it applies to the investor owner.

267. 52 ID1C SUTHERLAND CHARLES F. JR., TEDDER PHILIP L. "Impacts of Federal Estate Taxation on Investments in Forestry." Land Economics, Vol. 55, No. 4 (1979), pages 510-520. Analyzes how new estate tax laws affect forest property owners for different forest conditions, and determines present net worth of forest estates for varying age-class distributions and stocking levels when the new forest owner (heir) must fund the estate tax by selling standing timber.

268. 52 ID2 ANTSUKEVICH O.N. "Economic Evaluation of Forests." Lesnoe Khozyaĭstvo, No. 2 (1979), pages 16-18. In Russian. Method developed by the author in Soviet Lithuania for evaluating growing forests, i.e. the forestland plus the growing stock. Method is based on the cost-price of 1 m3 of wood increment on the worst site conditions, and standard rates of differential return according to site fertility and location.

269. 52 ID2 BOSKOS L. Applying the Theory of Financial Value to the Calculation of a Plantation's Present Net Worth under Uncertain Conditions: A Methodological Study. Dissertation - Ph.D., Faculty of Law and Economic Science, Nancy, France. (1979), 351 pages. In French.

270. 52 ID2 TURKEVICH I.V. "Integrated Economic Evaluation of Forests." Lesnoe Khozyaĭstvo, No. 1 (1979), pages 12-17. In Russian. Problems involved in calculating financial return attributable to forestland in the Marxist theory of rent, and an optimization model for determining costs in forest production. Formulas for calculating exploitation value, evaluating water-regulating function, and recreational function of the forests.

271. 52 ID6 MATER JEAN. Citizens Involved: Handle with Care! Timber Press (1978), 166 pages. A forest industry guide to working with the public. Deals with the question of public input in forest management decisions.

272. 52 IE POULSEN GUNNAR. Sylva Africana: Forestry Research in Africa. Forestry Cooperative Research Project, International Development Research Center, Nairobi, Kenya, No. 1+ (1978+), In French and English. Quarterly newsletter designed to stimulate the interchange of ideas and the dissemination of forestry research results within Africa.

273. 52 IF COUFAL JAMES E. "Forest Technician School Enrollment and Employment of Graduates, 1978-1979." Journal of Forestry, Vol. 78, No. 2 (1980), pages 89-90. Survey of 72 two-year forest technician schools in 27 states during 1978-79. Total enrollment was 3,500 to 4,000 with 1,300 to 1,400 graduates expected in 1979. Of 1978 graduates, 73 percent had found jobs in forest technology by early 1979, and 10 percent had other employment. Industry was the main employer in 1978.

274. 52 IF GEMMER THOMAS V. "Proposed Curriculum for Fire Management Specialists." Journal of Forestry, Vol. 78, No. 3 (1980), pages 149-151. increasing need for fire managers prompted the National Wildfire Coordinating Group in 1978 to prepare an analysis of the tasks performed by a journeyman fire specialist and to sponsor a curriculum study based on the analysis. To train fire managers, the study report proposes a series of university courses that an undergraduate forestry student might take for a minor or concentration, and

a series of interagency courses that would provide post graduation training and agency-specific expertise.

275. 52 IF LEHTO J. "Forest Education Evaluated by Forestry Organizations." Folia For., No. 398. (1979), pages 1-46. In Finnish. Education of forestry foremen, forest technicians and forestry graduates. Main aim has been to find those central teaching areas which seem to be important to forestry organizations.

276. 52 IF MUTH ROBERT M., HENDEE JOHN C. "Technology Transfer and Human Behavior." Journal of Forestry, Vol. 78, No. 3 (1980), pages 141-144. Past successes in technology transfer provide the key to future improvements. Forestry needs to employ the well established concepts and principles of diffusion and adoption behavior in developing programs so that the best available technology is rapidly and correctly applied in forest management settings.

277. 52 IF OBSTEN GERHARD. Investigations about the Socialization of Potential Young Members of Forest Administrations. Dissertation Universitaet Freiburg. (1978), 262 pages. In German. Applicants for a profession in forestry and forestry students often have little information or wrong impressions about requirements, norms, and behavior customs within forest administration. This affects their motivation and degrades the work and reputation of the organization itself. This work examines such problems and offers several solutions to bridge such difficulties.

278. 52 IH ANDERSON GEORGE A. "Amendments to Clean Water Laws as They Affect Forestry." Forest Farmer, Vol. 39, No. 3 (1980), pages 87-89. Significant inputs by Forest Farmers Association and many others resulted in some helpful amendments to Public Law 92-500, the 1972 Federal Water Pollution Control Act. Substantial changes were made to Section 404 when Congress passed the act in 1977. This section regulates placement of dredged or fill material in all waters of the U.S. Exemptions and EPA's proposed final regulations for section 404 are explained.

279. 52 IIA1 BACKER W. "Manpower Planning on the Organizational Level." South African Forestry Journal, No. 110 (1979), pages 61-66. Manpower planning can be used not only to determine gross manpower needs but also to measure the productivity of operations in terms of people

required to complete specific tasks.

280. 52 IIA1 CHUNG DAE KYO. A System of Forest Labor and Mechanization. Report on Forest Administration Research, Office of Forestry. (1979), pages 161-313. In Korean. The possible means to mechanization and job security in forest operations.

281. 52 IIA1 EISENHAUER G. "Problems of Ergonomics in Agriculture and Forestry in the Tropics and Subtropics." Forstarchiv, Vol. 50, No. 9 (1979), pages 181-183. In German. General discussion of possible ways to improve utilization of the labor force in developing countries. Basic improvements, e.g., better standards of health and housing, and more suitable work conditions.

282. 52 IIA1 GERMISHUIZEN P.J., VOS B.H. "Man and Machine in Re-establishment Forestry at Usutu." South African Forestry Journal, No. 110 (1979), pages 27-30. Methods used in determining and monitoring labor requirements are discussed. Whenever possible, mechanical methods have been considered in re-establishment forestry but the continued importance of man is acknowledged and the conclusion drawn that the silviculture worker is in need of training.

283. 52 IIA1 MOUTON B. Employment and Labor in the Silviculture and Logging Professions. National Institute of Agricultural Research, Nancy, France. (1977), 139 pages. In French.

284. 52 IIA1 MUNRO J.J. "Labor Union Philosophy and Attitudes Respecting Uses and Management of Forested Land." The Forestry Chronicle, Vol. 55, No. 6 (1979), pages 222-224. Paper prepared for the Seventy-first Annual meeting of the Canadian Institute of Forestry, Jasper, Alberta, October 2, 1979.

285. 52 IIA1 YOO BYOUNG IL, MYOUNG KYU PARK. "Labor Changes in Mountainous Villages." Journal of Korean Forestry Society No. 45 (1979), pages 37-45. In Korean with an English summary. Forest labor changes caused by mass drain of rural population from mountainous villages.

286. 52 IIA2 DU TOIT C.W.H. "The Present Labor Force in the Forestry Industry and Ten Years Hence." South African Forestry Journal, No. 110 (1979), pages 67-69.

287. 52 IIA2 JEONG JWA JONG. "Activities and Opinions of Village Forestry Association Members." Forest Economy, Vol. 32, No. 6 (1979), pages 17-28. In Japanese. Problems of expansion of the Village Forestry Associaton in Korea as interpreted from membership interviews.

288. 52 IIA2 NOGUCHI TOSHIKUNI. "Improvement in Private Forestry." Forest Economy, Vol. 32, No. 8 (1979), pages 10-16. In Japanese. Effect of unionizing forest workers upon improvement of forestry in Yahagi-Cho, Gifu Prefecture.

289. 52 IIA3 COTTELL P.L. Approaches to Training and Motivation in Forest Work. Faculty of Forestry, Univ. of British Columbia, Vancouver, Canada. (1978), 8 pages. A paper for the eighth World Forestry Congress, Jakarta, Indonesia, Oct., 1978.

290. 52 IIA3 COTTELL P.L., LAWRENCE PETER, YOUNG GLEN, SAUDER BRENT, HUSCROFT KEVIN. "Understanding Man-Machine Relationships in Logging." Pulp and Paper Canada, Vol. 81, No. 2. (1980), pages 61-66. Increased attention to developing understanding of the relationship between man and machine in logging will be important to achieving productivity goals of the 1980's and 1990's. Understanding is only useful or effective if it is applied to the design of efficient man-machine systems that can produce at competitive cost, while providing a work environment that people find intrinsically satisfying and motivating, that is safe, and does not threaten their health over the long term.

291. 52 IIA3 GOODWIN J. F. "The Training, Motivation and Social Promotion of Forest Workers." Research and Developement Paper 120 (1978) Prepared by the Forestry Commission of Great Britain for the Eighth World Forestry Congress held in Oct. 1978 in Jakarta, Indonesia.

292. 52 IIA3 JACKSON D.A. "Labor Costs of Nursery and Silviculture in Short Rotation Eucalyptus Crops Grown for Mining Timber." South African Forestry Journal, No. 110 (1979), pages 31-36. When should man be replaced by machine? Decisions must be based on: (a) relative costs of man and machine (present and future), and (b) availability of labor to perform the task required.

293. 52 IIA4 BARDY D. A. "The Health and Safety of Forest Workers in Developed Countries." Research and

Development Paper 119. (1978) Prepared by the Forestry Commission of Great Britain for the Eighth World Forestry Congress held Oct. 1978 in Jakarta, Indonesia.

294. 52 IIA4 CONLIN JOSEPH R. "Old Boy, Did You Get Enough of Pie?" Journal of Forest History, Vol. 23, No. 4 Oct. 1979, pages 164-185. A social history of food in logging camps including its importance in labor relations.

295. 52 IIA4 ELOVIRTA P. "Permanence of Forest Labor in Finland." Folia For., No. 406. (1979), pages 1-28. In Finnish. Forest workers in Finland and the factors influencing turnover.

296. 52 IIA4 LOCKYER C.J.B. "Woodworking Machines, Part I." Industrial Safety, Vol. 25, No. 5 (1979), pages 8-10. Relevant UK woodworking machine regulations are outlined including sections on: training, causes of accidents, machine controls, working space, floors, temperature, guarding of machinery and tools, and duties of persons employed.

297. 52 IIA4 VÄYRYNEN S. "Health and Safety Risks in Forest Machinery Maintenance." Teho, No. 10 (1979), pages 18-20, 46-47. In Finnish with an English abstract. 31 percent of the accidents with forest machines in Finland in 1977 occurred during service and repair operations. Corresponding figure for forest tractors and multipurpose machines was over 50 percent, although only slightly more than 10 percent of working time was spent in repair operations.

298. 52 IIB2B SMALL D. "Forest for All Seasons. Changed Use for Royal Hunting Ground." Geographical Magazine, Vol. 51, No. 9 (1979), pages 620-628. New Forest in the south of England has changed roles from royal hunting grounds to forestry, agriculture, and recreation area. In 1975 a system of advanced reservations for 6,000 campsites was initiated. A major visitor center was put into operation and strict control exercised over cycling, and back-packing.

299. 52 IIB2B YOUNG CHARLES R. The Royal Forests of Medieval England. Philadelphia: Univ. of Penn. Press. (1979), ix+ 221 pages. An analysis involved in the administration of royal forests in medieval England, with emphasis on the period from the Norman Conquest to the close of the fourteenth century.

300. 52 IIB2C HENDRICKS ROBERT H., HEADLEY J.C. "Financing Local Government: The Impact of Public Land Ownership." Land Economics, Vol. 55, No. 4 (1979), pages 499-509. Provides a brief institutional background and a statistical test of two hypotheses: (1) that public land intensity adversely affects local government finances and (2) that the impact that public land intensity has on local government finance is influenced by the predominant use made of the land.

301. 52 IIB2C NIESSLEIN ERWIN. Recreation Area, Vienna Forest - A Study of Forest Land Use Planning. Schriftenreihe der Oesterreichischen Gesellschaft für Raumforschung und Raumplanung, Vol. 20, Springer-Verlag, Vienna and New York. (1975), 78 pages. In German. Describes the situation of a forest area close to the city of Vienna and proposes improvements for forest land use planning.

302. 52 IIB2C SETH V.K., JAJU N.D. "Three Years' Financial Review and Performance Appraisal of Madhya Pradesh State Forest Development Corporation, Ltd." The Indian Forester, Vol. 105, No. 9 (1979), pages 613-637. In English, Indian, German, and French. In State undertakings, social objectives are more important than profit. The MP State Forest Development Corporation aims at generating employment in the remote and under developed areas not only to improve the standard of living of the tribal people, but also to ensure rapid economic growth by building up required infrastructure. Financial review, profitability analysis and performance appraisal in relation to corporate objectives and socio-economic aims of the MP State Forest Development Corporation.

303. 52 IIB3A BUTTOUD G. "The Owners of Private Forestland in France; Anatomy of a Pressure-Group." Nancy, France - ENGREF (1979), 521 pages. In French. Historical, sociological, and political study of private ownership of forestlands in France, formation of societies of forest owners and development of syndicates.

304. 52 IIB3B HULETT STANLEY W. Trees Are for People: The New Dimension of Industrial Forestry. The S.J. Hall Lectureship in Industrial Forestry, April 18, 1979. Univ. of California, Berkeley. (1979), 7 pages.

305. 52 IIB3B HUTCHERSON KATE. "Management of Special Forest Areas at Westvaco." Journal of Forestry, Vol. 77, No. 12 (1979), pages 774-775. Areas having unique biological, geological, historical, or

recreational significance are being integrated into Westvaco Corporation's forest management system. This process is being accomplished through inventory of areas, incorporation of them into a computerized resource information and mapping system, and development of specific management guidelines for them.

306. 52 IIB3C BAKER JAMES b., HARRINGTON T.A. "Arkansas Research Program Stresses Management for Smaller Landowners." Forest Farmer, Vol. 39, No. 3 (1980), pages 6-7, 17. Work at Monticello and Crossett seeks to develop silvicultural and uneven-aged management techniques applicable to smaller forest tracts.

307. 52 IIB3C KIM KAP DUK, EUNG HYOUK CHO. "Private Forest Owners' Knowledge of Recommended Forest Policy Practices in Korea." Bulletin of the Seoul N. University Forests No. 15. (1979), pages 73-79. In Korean wit' an English summary.

308. 52 IIB3C Small Woodlands on Farms. Dartington Amenity Research Trust. (1979), 118 pages. A report on the neglected farm woodlands of England and Wales, probably more than 200,000 hectares, with recommendations for management to improve value for timber production, recreation and conservation.

309. 52 IIC2 JAKES PAMELA J., SPENCER JOHN S. JR., ESSEX BURTON L. Land-Use Change in Missouri, 1959-1972. USDA Forest Service Resource Bulletin NC-40. (1979), 19 pages. Missouri's third forest survey showed an eleven percent decline in commercial forest area between 1959 and 1972. Most of this land was converted to nonforest uses, primarily pasture. Of the land that remained classified as commercial forest, 75 percent underwent little or no treatment between surveys.

310. 52 IIC3 BERNAUER BERNHARD. Investigation of the Problems in Evaluating Decisions Concerning Areas of Marginal Yield with Special Regard to the Methods of Cost-Benefit Analysis and Utility Value Analysis. Dissertation Universitaet Freiburg. (1975), 177 pages. In German. Land-use decisons are difficult due to the problem of agricultural marginal yield areas. Besides financial considerations a lot of problems have to be considered, e.g., ecology, recreation, aesthetics of landscape, that cannot be valuated with market prices. utility value analysis proves to be a valuable tool to use in the decision process.

311. 52 IIC3 BETHEL JAMES S., MASSENGALE MARTIN A. Renewable Resource Management for Forestry and Agriculture. Seattle: Univ. of Washington Press (1979), 126 pages. Collection of seven papers from a 1977 symposium sponsored by the American Association for the Advancement of Science. Two papers on technology, two on energy, two on economics, and one on the potential of land.

312. 52 IIC3 ERICKSON DAVID L. Proceedings: Land Use Planning Workshop. Dept. of Forestry, Univ. of Kentucky (1979), 138 pages. Papers presented at a workshop held in Lexington, Kentucky, August, 1978 and sponsored by SAF's Land-Use Planning and Design Working Group and the Department of Forestry, Univ. of Kentucky. Of special interest are the case studies which cover input-output analysis, social impact assessment, and carrying capacity for riparian systems.

313. 52 IIC3 KIO P.R.O. "Management Strategies in the Natural Tropical High Forest." Forest Ecology and Management, Vol. 2, No. 3 (1979), pages 207-220. With better knowledge of tropical ecology and silviculture, and given the vast yield potential of wood, and wide variety of nonwood benefits, a re-evaluation of the policy favoring the indiscriminate establishment of plantations of inferior, and allegedly high-yielding, species to replace rich tropical high forests is suggested.

314. 52 IID1 BARE B. BRUCE, WAGGENER THOMAS R. "Forest Land Values and Return on Investment." Forest Science, Vol. 26, No. 1 (1980), pages 91-96. Increases in forest land values are occasionally viewed as returns separate from investment returns due to timber harvesting. When treated in this manner, the combined investment return appears to be greater than that obtained from the timber harvest alone. Future forest land values can increase only if timber price increases are anticipated beyond the first rotation. However, such anticipated price increases will be capitalized into higher present land values rather than increase the rate of return. Observed differences in land values over time are consistent with capitalized economic rent theory and cannot be correctly attributed as increases in investment returns. Land shifted to alternative nonforest uses in the future may also demand higher prices. If anticipated, such increases will also be reflected in higher present land values.

315. 52 IID1 CAVANA R.Y., O'DEA D.J. "New Zealand's

Increased Exotic Forest Planting Program - Its Consequences for Capital Requirements and Processing." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 172-188. In the next three and a half decades a fourfold increase could occur in the annual availability of exotic roundwood supplies. Examines the capital (private and public) required over and above the existing capital stock to utilize this resource in a number of different ways, and relates it to the likely total capital formation required in New Zealand over the period.

316. 52 IID1 NOLOP BRUCE P., WILLIAMSON GEORGE E. Fundamentals of Financing Major Timber Acquisition. School of Business, Oregon State Univ. (1980), 15 pages. Describes fundamental factors used to design a financial structure that most appropriately meets the objectives of the buyer and the seller in a timber transaction (either timberland and/or stumpage). Factors: property interest, payment terms, and acquisition vehicles.

317. 52 IIIA1 BELL ENOCH F., JOHNSON K. NORMAN, CONNAUGHTON KENT P., SASSAMAN ROBERT W. Roadless Area - Intensive Management Trade-offs on the Bridger-Teton and Lolo National Forests. USDA Forest Service General Technical Report INT-72 (1979), 38 pages. Study of ways to offset losses in timber harvesting resulting from removal of roadless areas from the timber management base revealed few opportunities to do so. Removal of roadless areas also resulted in decreases in present net worth, in employment, in opportunities for mineral development, in dispersed recreation related to roads, and in forage production in the roadless areas. When roadless areas were reserved from timber harvest, major improvements on both forests were projected in water quality, in soil stability, in fish and wildlife populatons, and in dispersed recreation opportunities away from roads.

318. 52 IIIA2 HU SHIH-CHANG, BURNS PAUL Y. "Fertilizing Virginia Pine for Christmas Tree Production." American Christmas Tree Journal, Vol. 24, No. 1 (1980), page 17. Application of fertilizer to some soils in southeastern Louisiana (especially at 500 pounds per acre) can increase Virginia pine tree growth and produce more saleable Christmas trees in a shorter period of time.

319. 52 IIIA2 HU SHIH-CHANG, BURNS PAUL Y. "Growing Spruce Pine as a Christmas Tree." American Christmas Tree Journal, Vol. 24, No. 1 (1980),

pages 15-16. Results of research indicate that spruce pine can be grown and marketed successfully as a Christmas tree within five years in Southeastern Louisiana.

320. 52 IIIA2 UTZ KEITH A., BALMER WILLIAM E. Growing Christmas Trees in the South. USDA Forest Service General Report SA-GR5 (1979), 25 pages. A general guide and source of material for both potential and established Christmas tree growers. Contains sections on personal requirements, site and species selection, planting, plantation management, marketing, investment analysis, and sources of information.

321. 52 IIIA3 MCLEAN ALASTAIR. "Grazing Forests and Clearcuts." Western Wildlands Vol. 5, No. 4 (1979), pages 34-35. Grazing on forested lands significantly reduces the cost of raising cattle and sheep, since they gain weight at low energy costs.

322. 52 IIIA3 MILES JOHN, KINNAIRD J.W. "Grazing: with Particular Reference to Birch, Juniper and Scots Pine in the Scottish Highlands." Scottish Forestry, Vol. 33, No. 4 (1979), pages 280-289. Emphasizes the positive role of large grazing animals in promoting regeneration by creating niches for seedling establishment; and discusses the deleterious effects, from the point of view of the forester, of grazing, browsing, bark stripping, trampling, and attack by insects.

323. 52 IIIA3 TUSTIN J.R., KNOWLES R.L., KLOMP B.K. "Forest Farming: A Multiple Land-Use Production System in New Zealand." Forest Ecology and Management, Vol. 2, No. 3 (1979), pages 169-189. Forest farming as practiced in New Zealand involves growing widely spaced pruned radiata pine on pasture to merge livestock farming and exotic forestry into a two-tier production system.

324. 52 IIIA4 BEHLEN DOROTHY. "Maple Sugaring." American Forests, Vol. 86, No. 3 (1980), pages 12-15. Explanation of sugaring business from small backyard efforts to professional operations. Includes bibliography with addresses and prices of publications and names and addresses of equipment suppliers.

325. 52 IIIA5A BANCROFT C. "Forestry for the Quality of Life: Evaluation and Analysis of the Impact of Forestry on Recreation." Research and Development Paper 124. Prepared by the Forestry Commission of

Great Britain for the Eighth World Forestry Congress held in Oct. 1978 at Jakarta, Indonesia.

326. 52 IIIA5A HOF JOHN GERRIT. Projection and Valuation of Outdoor Recreation Use of Forest Lands. Ph.D. dissertation, Colorado State University (1979), 220 pages.

327. 52 IIIA5A KROTH WERNER, HOEHLE HEINZ, HOYER REINHOLD. Burdens of Forest Enterprises from the Protective and Recreational Functions of Forests; Their Registration, Evaluation, and Legal Judgement. Scientific report for the Federal Department of Nutrition, Agriculture, and Forestry by the Department of Forest Policy and Forest Economics at Munich University. (1978), 99 pages. In German. Mathematic-statistical examination of a sampling method for gathering data; basics of data collection to find out the burdens; legal judgement of burdens with respect to the social commitment of forest property; possibilities to carry on the results using a model or using the existing sample net of forest enterprises.

328. 52 IIIA5A MIYABAYASHI S., SHIOYA T. "Recreation on a National Forest." Forest Economy, Vol. 32, No. 10 (1979), pages 11-12. In Japanese. Status and problems of recreation development in the Hotaka general forest recreation area, Gunma Prefecture. Impacts of recreation on a nearby mountain village.

329. 52 IIIA5A VAN DOREN CARLTON S., PRIDDLE GEORGE B., LEWIS JOHN E. Land and Leisure: Concepts and Methods in Outdoor recreation (second edition). Chicago: Maaroufa Press, Inc. (1979), 317 pages. Divided into five topics: (1) Recreation, changing social values and assessment; (2) Resource utilization: planning and management; (3) Methods of recreation use evaluation; (4) Provision of resources: public and private; (5) Recreation, resources and decisions.

330. 52 IIIA5B BRYAN HOBSON. Conflict in the Great Outdoors: Toward Understanding and Managing for Diverse Sportsmen Preferences. Sociological Studies No. 4, Bureau of Public Administration, Univ. of Alabama (1979), 96 pages. A critical overview of social and behavioral outdoor recreation research and a study of trout fishermen in the Intermountain West.

331. 52 IIIA5B ESPESETH R.B. "Land Between the Lakes: An Environmental/Recreational Educational Laboratory."

Journal of Soil and Water Conservation, Vol. 34, No. 3 (1979), pages 148-149. 170,000 acre national recreation demonstration area. Tennessee Valley Authority provides administrative and operational supervision for demonstration areas in outdoor recreation, environmental education, and resource management and planning.

332. 52 IIIA5C BURNETT G. WESLEY, CONKLIN DAVID G. "Inventorying Recreation Potential in Dispersed Tracts." Journal of Forestry, Vol. 77, No. 12. (1979), pages 765-768. An inventory method for describing and quantifying certain landscape attributes has proven valuable for classifying scattered and heterogeneous tracts for their recreational potential. It is inexpensive, rapidly provides usable data, requires a minimum of specialized training, and may be adaptable to a wide variety of landscape and tract sizes.

333. 52 IIIA5D MCLAUGHLIN BRIAN P., SINGLETON PETER. "Recreational Use of a Nature Reserve: A Case Study in North Norfolk, U.K." Journal of Environmental Management Vol. 9, No. 3 (1979), pages 213-223. A survey undertaken during the summer of 1976 at the Holme Nature Reserve on the NW Norfolk coast to establish further information about visitors, their origins, their reasons for visiting the reserve and their distribution within it.

334. 52 IIIA5E CUTLER M. BUDDY. "Wilderness Decisions: Values and Challenges to Science." Journal of Forestry, Vol. 78, No. 2 (1980), pages 74-77. The US has made significant progress in wilderness preservation, and future progress will continue at a pace determined by public demand. Resource professionals are now engaged in the difficult task of designing sound working principles for wilderness management. Success here is critical to the continued value of these areas as a scientific resource, as well as a recreational and spiritual resource for all.

335. 52 IIIA5E FORSTER B. "Policies for Landscapes under Pressure - the Lake District National Park." Landscape Research, Vol. 4, No. 1 (1979), pages 12-16. Review of the pressures for change such as farming, forestry, mining, holiday accommodation and outdoor recreation; which have taken place in the English Lake District landscape since it was designated a national park in 1951.

336. 52 IIIA5F GODIN V.B., LEONARD R.L. "Management

Problems in Designated Wilderness Areas." Journal of Soil and Water Conservation, Vol. 34, no. 3 (1979), pages 141-143. Major problem was deterioration of trails and campsites. Other problems: managerial and public confusion about the meaning and operation of wilderness areas; conflicts of interest among users; conflicts between legal uses (grazing, mining) and the wilderness concept; vehicle and equipment use; boundary designation; disaster control; and lack of inventory data.

337. 52 IIIA5E HEINRICHES JAY. "Wilderness, Can We Have It and Use It Too?" American Forests, Vol. 86, No. 3 (1980), pages 16-19, 46, 49-50, 52-53.

338. 52 IIIA5E LABASTILLE ANNE. "Facets of Wildland Conservation in Central America." Parks, Vol. 4, No. 3 (1979), pages 1-6. The current state of park planning and development is briefly described for each Central American country, plus Belize and southern Mexico.

339. 52 IIIA5E PLAISANCE G. "Forest Management in Regional Parks." Spaces, No. 36 (1979), pages 12-16. In French.

340. 52 IIIA5E YOUNG ROBERT A., CHANDALL RICK. "Wilderness Knowledge and Values of the Illinois Public." Journal of Forestry, Vol. 77, No. 12 (1979), pages 768-770, 776. Even though their knowledge of wilderness was relatively low, the public generally approved of wilderness.

341. 52 IIIA5G DANIEL TERRY C., ZUBE ERVIN H., DRIVER B.L. Assessing Amenity Resource Values. USDA Forest Service General Technical Report RM-68. (1979), 70 pages. Papers from a workshop and symposium at the Ninth Annual Meeting of the Environmental Design Research Association discuss identifying environmental features responsible for perception of environmental quality, dimensions of wilderness experience, uses of wildlife, integrating user-based assessments with economic models, and the interface of natural and urban landscape elements.

342. 52 IIIA5G HELLIWELL D.R. "Economic Aspects of Amenity Woodland Management." Arboricultural Journal Vol. 3, No. 7 (1979), pages 541-546. There is an urgent need for development of agreed procedures for attaching values to amenity and wildlife conservation in woodlands. If such procedures can be developed they are likely to result in changes of emphasis in the management of some

woodlands, particularly those which are small, inaccessible, or in full public view. Greater emphasis will need to be placed on appropriate management rather than merely on the proportion of hardwoods in the crop, and calculations of costs and benefits should be related to the average annual costs of management of a continuing resource and not to the costs of establishing a resource which is periodically liquidated.

343. 52 IIIA5G LANGENAU EDWARD E. JR., O'QUIN KAREN, DUVENDECK JERRY P. "The Response of Forest Recreationists to Clearcutting in Northern Lower M ichigan: A Preliminary Report." Forest Science, Vol. 26, No. 1 (1980), pages 81-91. Behavioral and attitudinal responses of forest recreationists to clearcutting were measured on 8 quarter-townships, each 9 square miles in size. A majority of the responding recreationists had seen the clearcutting. Archery deer hunters and small game hunters had the most favorable attitude toward cutting while campers and canoeists were most opposed. A theoretical framework to explain the consistency and inconsistency of recreationists' response to clearcutting is presented.

344. 52 IIIA5G ROZSNYAY Z. "Early Ideas on Forest Landscaping and Forest Aesthetics." Forstarchiv, Vol. 50. (1979), pages 72-74, 100-104. In German with an English summary. Review of German literature published before the mid nineteenth century with particular reference to the period 1824-55.

345. 52 IIIA5H BEVINS MALCOLM I., LAPAGE WILBUR F., WILCOX DANIEL F. The Campground Industry-Recent National Trends. USDA Forest Service General Technical Report NE-53 (1979), 41 pages. Recent trends indicate the number of US campers is increasing by 1 or 2 percent annually. Industry leaders looking toward 1985 foresee: (1) a slower rate of new campground development, (2) more campgrounds closer to population centers, (3) more full-season camp-site rentals, (4) more on-site RV rentals, (5) a slight decrease in federal campsites, and (6) more public agency use of concession management.

346. 52 IIIA5H BURCH WILLIAM R. JR. Long Distance Trails, the Appalachian Trail as a Guide to Future Research and Management Needs. School of Forestry and Environmental Studies, Yale Univ. (1979), 172 pages. Revised proceedings of the Appalachian Trail Symposium, Oct. 11-13, 1977, Kingwood Park, New

Jersey. Covers: (1) how long trails emerged, (2) how various groups perceive and use long trails, (3) what kinds of research are thought to be essential, and (4) what research can presently tell us about long trail management.

347. 52 IIIA5H FOSTER RUSSELL J., JACKSON EDGAR L. "Factors Associated with Camping Satisfaction in Alberta Provincial Park Campgrounds." Journal of Leisure Research, Vol. 11, No. 4 (1979), pages 292-306. Identification of variations in satisfaction and quality of experience is a necessary step in planning for the allocation and design of campground facilities. Recommendations are made for campground design, and guidelines for spacing and screening of campsites.

348. 52 IIIA5H GIBBS KENNETH C., VAN HEES WILLEM W.S. A Cost Analysis of U.S. Forest Service Campgrounds in the Pacific Northwest. School of Forestry, Oregon State University. (1980), 15 pages. Regression analysis of 111 campgrounds expresses cost as a function of number of campsites and rate of use. Intended for planners who want cost forecasts.

349. 52 IIIA5H Campgrounds and Camping 1980: Trends, Research, Future Needs. Dept. of Forestry, Southern Illinois Univ. (1979), 164 pages. Proceedings containing the text of 24 papers and talks presented at a conference held in November 1978 at Land between the Lakes, Brandon Spring, Tennessee. Covers: trends in campgrounds and camping, research overview, future needs for improving camping, and research papers.

350. 52 IIIA5I GIBBS KENNETH C., QUEIROLA LEWIS, LOMNICKI CRAIG. The Valuation of Outdoor Recreation in a Multiple-Use Forest. Forest Research Laboratory, Oregon State Univ., Research Bulletin 28. (1979), 18 pages. A methodology for evaluating nonmarket uses of forest resources, particularly those associated with recreation. Although results are unique to the resource base analyzed, the application typifies the procedures employed, the type of data required, and the kinds of answers the technique can provide. The model can easily be adapted to different situations by changing assumptions and conditions.

351. 52 IIIA5I HUSSER WESLEY N., ZEIMER ROD F. "Estimating Recreation Values Associated with Land Use Changes." Southern Journal of Agricultural Economics, Vol. 11, No. 2 (1979), pages 97-102. Objectives: (1) review theoretical justifications for considering recreational opportunities in recreation

demand functions, (2) present an empirical model for big game hunting demand in Georgia which includes forestland acreage, an indicator of available hunting opportunities, as an independent variable, and (3) adapt standard methodology to provide an estimate of changes in consumer surplus for big game hunting due to recent changes in forestland in Georgia.

352. 52 IIIA51 NICHOLS LEN M., BOWES MARIANNE, DWYER JOHN F. "Reflecting Travel Time in Travel-Cost-Based Estimates of Recreation Use and Value." Dept. of Forestry, Univ. of Illinois. Forestry Research Report No. 78-12. (1978), 6 pages.

353. 52 IIIA7 HAY MICHAEL J., MCCONNELL KENNETH E. "An Analysis of Participation in Nonconsumptive Wildlife Recreation." Land Economics, Vol. 55, No. 4 (1979), pages 460-471. To justify using scarce natural resources as habitats or sanctuaries, policy makers must be able to show some gain for humans. The analysis of non-consumptive uses of wildlife is a necessary step in establishing the economic value of habitats. A preliminary empirical analysis of individuals' decisions to watch or photograph wildlife.

354. 52 IIIA7 LYON L. JACK. Influences of Logging and Weather on Elk Distribution in Western Montana. USDA Forest Service, Research Paper INT-236 (1979), 11 pages. Reports and evaluates the significance of weather conditions and logging activities on elk distribution. Recommendations for reducing the effects of disturbance on elk are presented.

355. 52 IIIA7 POTVIN FRANÇOIS, HOOT JEAN. "Deer Browse Production in Small Cutovers in Southern Québec." Wildlife Society Bulletin Vol. 7, No. 4 (1979), pages 247-252. Northern white-tailed deer utilized 50-70% of the available biomass in five small blocks of mixed forest type that had been clearcut. Researchers suggest that this intensive management approach be applied only to small areas where deer have a high recreation potential and that habitat management integrated with commercial forest exploitation be used on a wide scale.

356. 52 IIIA7 THOMAS JACK WARD. Wildlife Habitats in Managed Forests, the Blue Mountains of Oregon and Washington. USDA Forest Service, Agriculture Handbook, No. 553 (1979), 512 pages. This publication grew out of the need to salvage large volumes of timber damaged by an outbreak of the Douglas-fir tussock moth in eastern Oregon and

Washington in 1972-1974, and at the same time provide for the habitat needs of many types of wildlife. Guidelines developed were later adapted as an analysis tool to meet the needs of managers for considering wildlife in forest and land management planning. While the data are specific to the Blue Mountains of Oregon and Washington, the system and much of the summarized information are applicable to managed forests in many areas.

357. 52 IIIA8 ANDRESEN J.W., KELERTAS R.A.D. World Directory of Urban Forestry and Arboricultural Research Workers. Canadian Forestry Service, Dept. of the Environment Report O-X-302. (1979), 113 pages plus appendix. One of a series of directories listing forestry research workers in specialized disciplines and published for the international union of forestry research organizations.

358. 52 IIIA8 HULTMAN SVEN. "Interpretation for Recreation and Wood Production in Urban Forests." Arboricultural Journal Vol. 3, No. 7 (1979), pages 483-489. Urban forestry is defined. Conflicts between wood production and outdoor recreation are discussed.

359. 52 IIIA8 LIN W.S. "Arboriculture, Urban Forestry, and Environmental Forestry." Taiwan Forestry Journal, Vol. 5, No. 11 (1979), pages 7-13. In Chinese. Methods of urban forestry techniques, planning, and research in Taiwan.

360. 52 IIIA8 HAGILL ARTHUR W. "URBANBASE: Key to Urban Forestry Information." Journal of Arboriculture, Vol. 6, No. 4 (1980), pages 101-104. URBANBASE is a proposed information retrieval and exchange system, computerized and interdisciplinary. It would service cities throughout the U.S. and parts of Canada, providing technical guidance and solutions to everyday problems in urban forestry.

361. 52 IIIA8 MERRILL GARY O. "Applied Urban Forestry-An Example." Journal of Forestry Vol. 77, No. 12 (1979), pages 760-761. Murray, Utah is used as an example of a community with a functioning urban forestry program. The city forester supervises a Forestry Division with responsibilities in power line clearance, street and park maintenance, planting, and public information. Special projects include efforts in wood utilization, employee training, and a city tree inventory. Problems center around urban environmental impacts and public education.

362. 52 IIIB HODGSON T.J. "Justifications for Mechanization in Silviculture." South African Forestry Journal, No. 110 (1979), pages 16-19. Mechanization can: reduce labor requirements, increase total output, improve quality and working conditions, and reduce costs.

363. 52 IIIB1 HOAK JAMES E., WATSON WILLIAM F., VAN DEUSEN PAUL. "Costs and Cost Trends for Forestry Practices in the South." Forest Farmer, Vol. 39, No. 3 (1980), pages 58-63. Current cost estimates of practicing forestry in the South during 1979 and cost changes during the 1952-1979 period. Based on a survey completed in 1979.

364. 52 IIIB1 SAKAI MASAHIRO. "Trends in a Domestic Timber Producing District." Forest Economy, Vol. 32, No. 6 (1979), pages 1-16. In Japanese. Changes in timber production and distribution in the Hita district.

365. 52 IIIB1 TAMM C.O. "Productivity of Scandinavian Forests in Relation to Changes in Management and Environment." Irish Forestry, Vol. 36, No. 2 (1979), pages 111-120.

366. 52 IIIB1 ZOBEL BRUCE. "Imbalance in the World's Conifer Timber Supply." Tappi, Vol. 63, No. 2 (1980), pages 95-98. There is question whether there will be sufficient conifer timber of the proper size and quality and at suitable price available to continuously supply the needs of industry. An imbalance in age and size of the timber supply is generally evident. There is plentiful large timber, extensive young stands, but inadequate forests of an intermediate size and age. Circumstances in: the Southern United States, Western North America, Eastern Canada, and South America are discussed.

367. 52 IIIB3 EDWARDS P. N., GRAYSON A. J. "Respacing of Sitka Spruce." Quarterly Journal of Forestry, Vol. 73, No. 4 (1979), pages 205-218. When account is taken of the costs of respacing and the effects of lower log quality on price, it is found that the most profitable spacings achieved through the respacings are close to those of recent planting.

368. 52 IIIB3 KOCH PETER. "Concept for Southern Pine Plantation Operation in the Year 2020." Journal of Forestry, Vol. 78, No. 2 (1980), pages 78-82. Fertilization, close spacing, very early thinning, and application of new harvesting and manufacturing technology could yield - over a 35 year rotation -

146 tons per acre (ovendry basis) of pulp, 2 by 4 studs, random-length conventional lumber, millwork and structural laminated wood, long-wide structural lumber laminated from veneer, sheathing plywood, structural flakeboard, and animal food supplement. At $200 per product ton (ovendry basis, 1979 dollars), each acre could yield a gross realization of about $29,200 of these products per 35-year rotation; additionally, about 47 tons (ovendry basis) of fuel would be harvested over the 35-year rotation.

369. 52 IIIB3 KOIKE MASAO. "Progress and Procedures in Afforestation by Corporations." Forest Economy, Vol. 32, No. 7 and 8. (1979), pages 1-11, 18-27. In Japanese. Description and explanation of this corporate activity.

370. 52 IIIB3 TABBUSH P. "Roe Deer Control and Restocking in the Border Forests." Scottish Forestry, Vol. 33, No. 4 (1979), pages 290-294. Costs and benefits of fencing against Roe deer are considered against a background of poor success with restocking on carboniferous gleys in the Border Forests. Criteria which lead to the decision on fencing are explored and it is found that in present conditions benefits may often exceed costs, particularly if fencing is considered when making the initial felling plan.

371. 52 IIIB5 HEAPS TERRY, NEHER PHILIP A. "The Economics of Forestry when the Rate of Harvest is Constrained." Journal of Environmental Economics and Management, Vol. 6, No. 4 (1979), pages 297-319. Harvesting sequences which maximize the present value of an on-going forest are derived. Control theory is used to allow for various impingements on the rate of harvest. New harvesting rules are derived which generalize classical results. These emerge as special cases in an extended context.

372. 52 IIIB5 MASSIE M.R.C., RUDD J., MANNING G.H. ECON, Financial Evaluation Module for Tree Growth Simulators. Environment Canada, Forestry Service BC-X-187. (1979), 16 pages. ECON is a routine which can be used to test the physical outputs of tree growth simulation for financial feasibility. This routine is based on a modification of present net worth termed the "forestry fund" approach, which has the advantage of not requiring a priori assumptions concerning the cost of silvicultural treatments.

373. 52 IIIB5 WOBST H. "The Historical Development and

Intellectual Basis of Natural Forestry." Forstarchiv, Vol. 50, No. 2 (1979), pages 22-27. In German. Concept of natural forestry and its early proponents in Germany. Use of mixed, uneven-aged stands, and management for sustained yield and their advantages over monoculture systems.

374. 52 IIIC NORMANDIN D. Economics of Forest Transportation: Comparative Values of Forest Roads. National Institute of Agricultural Research, Nancy, France. (1978), 173 pages. In French.

375. 52 IIIC WU S.C. "Modern Forestry and Road Building." Taiwan Forestry Journal, Vol. 6, No. 2 (1980), pages 1-3. In Chinese. The importance of forest road building planning for multiple purpose management in Taiwan.

376. 52 IIID1 JULIO G. "Forest Fires in Bavaria between 1960 and 1976." Forst-Wissenschaftliches Centralblatt, Vol. 98, No. 6 (1979), pages 331-347. In German with an English summary. Analyzes forest fires that occurred in Bavaria between 1960 and 1976. The results contain details about risk and danger of forest fires according to tree species, age class, type of stand, ownership, and distance from the cities in Bavaria. Causes of the fires and seasonal distribution are listed and from this data, a map of distribution and intensity has been developed.

377. 52 IIID1 SANDO RODNEY W. "Natural Fire Regimes and Fire Management-Foundations for Direction." Western Wildlands Vol. 4, No. 4 (1978), pages 34-44. Describes four major natural fire regimes present in North America, fire management and its direction, and fire management programs.

378. 52 IIID1 WOOD DONALD B. Fuel Management Opportunities on the Lolo National Forest: An Economic Analysis. USDA Forest Service INT-272. (1979), 9 pages. Examines economic feasibility of managing nonslash fuels in mature timber to reduce the costs and damages of wildfire. Concludes that fuel treatment to protect timber alone is not economically feasible, but may be justified if treatment enhances other forest values such as wildlife habitat, livestock forage, etc.

379. 52 IIID2 LEISZ DOUGLAS R., WILSON CARL C. "To Burn or Not to Burn: Fire and Chaparral Management in Southern California." Journal of Forestry, Vol. 78, No. 2 (1980), pages 94-95. Fire hazard is

high in the chaparral type of southern California but the highly flammable vegetation, rugged topography, and strong, dry winds necessitate protection from wildfires by means other than, or additional to prescribed burning to remove the fuel. Frequent burns on steep slopes can degrade the soils and flora and cause serious off-site damage.

380. 52 IIID3 BROOKES MARTHA H., STARK R.W., CAMPBELL ROBERT W. The Douglas-Fir Tussock Moth: A Synthesis. USDA Forest Service Science and Education Agency Technical Bulletin 1585 (1978), 331 pages. Includes chapters on: (1) forest management considerations, (2) socioeconomic evaluation, (3) model integration, (4) pest management system.

381. 52 IIID4 GERKE RUDOLF. Evaluation of Peeling Damage Caused by Elk - Shown with the Example of Norway Spruce - Investigation of Economic and Silvicultural Effects over Larger Areas. Dissertation Universitaet Freiburg. (1980), 123 pages. In German. Techniques to quantify peeling damages caused by elk and indices for a tolerable extent of the current damage by rating the silvicultural effects of damages.

382. 52 IIIB CONDON L. "The Challenge to the Forest Manager." Irish Forestry, Vol. 36, No. 2 (1979), pages 105-110. Preservation of the ecosystem, and of crop structure as well as other relevant factors,e.g., practicing anti-disease and anti-pest infestation proceduures and harvesting in accordance with best known methods in order to produce raw material at a rate which will maintain the competitiveness of wood as a commodity.

383. 52 IIIE DYER A. ALLEN, HOF JOHN GERRIT, KELLY JAMES W., CRIM SARAH A., ALWARD GREGORY S. "Implications of Goal Programming in Forest Resource Allocation." Forest Science, Vol. 25, No. 4 (1979), pages 535-543. Goal programming, utilizing a preemptive priority formulation, is described and compared to linear programming to evaluate its effectiveness in solving public forest resource allocation problems.

384. 52 IIIE FORTSON JAMES C., FIELD RICHARD C. "Capital Budgeting Techniques for Forestry: a Review." Southern Journal of Applied Forestry, Vol. 3, No. 4 (1979), pages 141-143. Key steps in the financial analysis of proposed capital expenditures are presented as well as the conditions under which the net present value or internal rate of return is the

appropriate decision criterion. Factors which affect the choice of the discounting interest rate for cash flows are also reviewed.

385. 52 IIIE HAMILTON DAVID A. JR. "Setting Precision for Resource Inventories: The Manager and the Mensurationist." Journal of Forestry, Vol. 77, No. 10 (1979), pages 667-670. A method whereby precision and the resulting sample size are based on the consequences of errors in inventory estimates and the inventory costs. Responsibility of the manager is to define and quantify the consequences of errors in the estimates; the mensurationist calculates costs of the inventory and determines the estimate of optimal precision.

386. 52 IIIE KIELY-BROCATO KATHLEEN A., BUHYOFF GREGORY J., LEUSCHNER WILLIAM A. "An Attitude Matrix Scaling System with Relevance for Resource Management." Journal of Environmental Management, Vol. 10, No. 1 (1980), pages 71-81. Attitude surveys can serve as the basis of public interest and opinion inputs to natural resource planning and management decision-making. It is necessary to understand the contributions of the belief and affective components of attitude and to measure these in a manner which reflects overall resource management objectives.

387. 52 IIIE P AHK TAE SIK. Planning and Management of Large-Scale Plantations. Report on Forest Administration Research, Office of Forestry. (1979), pages 1-160. In Korean. Principles, methods and directions for planning, problems of small-scale private forests, and necessary silvicultural activities have been analyzed for 80 large-scale plantation blocks (5 thousand ha each) to be established in Korea.

388. 52 IIIE RAČKO JOZEF. "Calculation of Timber Stock and Its Mean Taxation Data from Values Obtained by a Method Related to Stereophotogrammetry." Lesnícky Časopis Vol. 25, No. 4 (1979), pages 271-284. In Czech with English abstracts. A continuation of the subject published by the author in the journal, Lesnictvi, Vol. 24, No. 4 (1978). Various problems in measuring tree heights using stereograms prepared in various stand structures. Possibilities for automation in processing values obtained by the recommended method are mentioned.

389. 52 IVA1B KEEGAN CHARLES E. III, WHITE RANDLE V., SETZER THEODORE S. Wyoming Timber Production and Mill Residues - 1976. USDA Forest Service Resource

Bulletin INT-19 (1979), 5 pages. Data are presented for three regions, made up of county groupings, in addition to the state total. Also included are historical trends in roundwood harvest since 1952, and comparisons of 1976 products output, mill residues and residue use with 1969 estimates.

390. 52 IVA1B O'LAUGHLIN JAY, ELLEFSON PAUL V. Diversified Firms Entering the Woodbased Industry by Merger. Staff Paper Series Number 7, Univ. of Minnesota (1979), 121 pages.

391. 52 IVA1C ELLIOTT G.K. "Utilization of British Timber." Forestry and British Timber. Vol. 8, No. 6 (1979), Pages 20-23. Statistics (mainly from the Forestry Commission) on: timber delivered to wood-based industries, 1970-1976; end uses of roundwood, 1976; regional distribution of sawmills, 1973; potential and actual production of pulpmills, 1973-1977; and use of timber in deep mines, 1950-1977.

392. 52 IVA1C GUILLON PIERRE. The French Forest Industry in 1973. Laboratory of Forestry Economics. Nancy, France. (1978), 93 pages. In French. A comprehensive set of statistical data describing the flow of material from the forest to the consumer.

393. 52 IVA1C TALKAMO T. "Removal and Flow of Commercial Roundwood in Finland During 1976 by Districts." Folia Forestalia, No. 397. (1979), pages 1-33. Since 1964 the purpose of the surveys of removal and flow of commercial roundwood has been to calculate every third year the flow of commercial roundwood from cutting areas to utilization areas and to compare the proportional changes in the cutting amounts and flows between different survey years.

394. 52 IVA1C Strategy for the UK Forest Industry. Centre for Agricultural Strategy, University of Reading. 347 pages. Forecasts and recommendations concerning United Kingdom demand for timber, needs of wood processing industries and increased self-sufficiency within alternative land use requirement constraints.

395. 52 IVA1D LOUBSER A.A.D. "Some Factors Determining the Optimum Level of Mechanization in Harvesting and Transport in the Republic of South Africa." South African Forestry Journal, No. 110 (1979), pages 55-59. Afrikaans with English abstract. Compared with certain developments overseas where manpower and horsepower have been replaced with machine horsepower, the mechanization of harvesting and

transport of timber in the Republic of South Africa has more or less come to a standstill. Reasons are discussed against the domestic background and silvicultural practice that is followed locally with special reference to the use of available labor.

396. 52 IVA1E COONEY JERRY W. "Forest Industries and Trade in Late Colonial Paraguay." Journal of Forest History, Vol. 23, No. 4 (1979), pages 186-197.

397. 52 IVA3 WILLIAMS MICHAEL. "Products of the Forest: Mapping the Census of 1840." Journal of Forest History, Vol. 24, No. 1 (1980), pages 4-23. Uses census maps to gather statistics on: amounts of fuelwood sold; naval stores, potash, skins and furs, ginseng, and other forest products sold; number of saw mills and men employed in them.

398. 52 IVB1 HULL CARY W. "Redwood Logging: The Early Years." Western Wildlands Vol. 5, No. 3 (1979), pages 19-23. From a Master's thesis entitled, "The Struggle of Trees and Men", published in 1975 by the School of Forestry at the Univ. of Montana.

399. 52 IVB2 EKLUND RISTO, OSARA M.A., NILSSON BERTIL. Cost Reductions in Timber Harvesting - Investigation to Reduce the Costs of Cutting, Logging, Transportation, Storage, and Utilization of Wood. Publications of the Federal Department of Nutrition, Agriculture, and Forestry - Agriculture as Applied Science, Vol 226. (1979), 235 pages. In German. The financial yield situation of forestry in the Federal Republic of Germany has become more and more difficult. Measures proposed to increase effectiveness of forestry.

400. 52 IVB2 PEELY J.E. "Man and Machine in Pulpwood Harvesting and Transport." South African Forestry Journal, No. 110 (1979), pages 49-54. The introduction of the cutter-forwarder shortwood system and its impact on operations and management. Some factors of the environment of the South African forestry industry present opportunities which should be capitalized on. A system of establishing the required men and machines, factors affecting the decision to mechanize are discussed, management's role in synchronizing the productive partnership.

401. 52 IVB2 PRISK TORSTEN. "Harvesting Mixed tropical Timber for Paper." Unasylva, Vol. 30, No. 122 (1978), pages 14-24.

402. 52 IVB2 SIMMONS FRED C. Handbook for Eastern Timber

Harvesting. USDA Forest Service, US Govt. Printing Office Stock Number, 001-001-004430. (1979), 180 pages. A complete revision of the "Northeastern Logger's Handbook" first published in 1951 as USDA Agricultural Handbook 6. This edition takes into account the mechanization of many logging operations, the scarcity of woods workers, and other changes which have altered the logger's work. Numerous illustrations.

403. 52 IVB2 VENTER J.S.J. "Some Aspects of the Use of Men and Machines in a Typical Logging and Transport Operation in the Natal Midlands." South African Forestry Journal, No. 110 (1979), pages 43-48. Although the cost of logging equipment is high, the cost of skilled labor is still very much cheaper and more available than in highly developed countries. An example comparing three different logging methods, ranging from labor-intensive to relatively mechanized, is presented.

404. 52 IVB3 GULBRANDSEN K. "Marginal Wood Resources in Norway - Whole-Tree Project." Sluttrapport, Skogbrukets og Skogindustriens Forskningsråd. (1979), 8 pages. In Norwegian. Final report of the whole-tree project undertaken by the research council for forestry and forest industries includes estimates of unused resources from: first thinnings, non-commercial hardwoods, logging residues, and stump and rootwood from reforestation areas.

405. 52 IVB3B DAUBER VON E., KREUTZER K. "The Estimaton of the Potential Logging Residues in the Federal Republic of Germany." Forst-Wissenschaftliches Centralblatt, Vol. 98, No. 6 (1979), pages 289-297. In German with an English summary. A rough estimation of logging residues in the FRG was made by using felling statistics and the relationships between the residual components and the merchantable part of the tree.

406. 52 IVB3B KREUTZER KARL. "Potential of Residues in Forestry (Logging Wastes)." Vol. 1: DAUBER E., ZENKE B., GLATZ E. Potential of Logging Residues in the Federal Republic of Germany with Special Regard of the Bavarian Timber Supply Prognosis and Cutting Restrictions Holding True in Bavaria. Vol. 2: LUGER P., GAMPE S. Attributes and Utilization Possibilities of Residues in Forestry - Present Harvesting Methods, Trends of Development and Harvesting Costs. (1978), Vol. 1, 250 pages, Vol. 2, 232 pages. In German. A study by request of the Federal Department of Research and Technology carried out at the School of

Forestry, University of Munich to record logging residues left in the forests as a possible reserve of energy and raw material not utilized so far.

407. 52 IVB4 BOYD KENNETH G. "Water Transport of Wood: B.C. Coast." Pulp and Paper Canada Vol. 80, No. 11 (1979), 28-31, 34. B.C's coastal mills depend on water transport for their wood supply. Larger carriers are more efficient, but enormous capital costs are a deterrent.

408. 52 IVB4 ŠKODA JÁN. "Hauling of Hardwood Timber." Lesnícky Časopis, Vol. 25, No. 4 (1979), pages 315-320. In Czech with English abstracts. A selection of results from several papers on the problems of timber hauling. In addition to the mechanical problems of hauling, the need to solve social and work conditions of hauling is stressed.

409. 52 IVC1C Electronics in the Sawmill. San Francisco: Miller Freeman Publications, Inc. (1979), 120 pages. Text of fourteen presentations given at the Electronics Workshop held in March, 1979 at the North American Sawmill and Plywood Clinic. Presents current thinking on automation and provides practical solutions to maximizing resource utilization and productivity.

410. 52 IVC2A ALLAN DAVE R. "Supply, Demand Imbalance the Rule for Newsprint Going into the 1980's." Pulp and Paper, Vol. 54, No. 2. (1980), pages 175-177. Allocations continue and prices move up as paper companies, newspapers prepare for spring strikes; recession may ease high demand.

411. 52 IVC2A GOMEZ GUSTAVO. "Case History of a South American Paper Mill." Unasylva, Vol. 30, No. 122. (1978), pages 14-24. Capital formation in developing countries in the years ahead lies in the development of pragmatic working partnerships of governments, private investors at home, foreign companies, and international funding agencies.

412. 52 IVC2A WRIST PETER. "Pulp and Paper: the Next 25 Years." Southern Pulp and paper Manufacturer, Vol. 43, No. 1 (1980), pages 13-15.

413. 52 IVC2C BLYTH JAMES E., SMITH W. BRAD. Pulpwood Production in the Lake States, by County, 1978. USDA Forest Service Research Note NC-247. (1979), 4 pages. Pulpwood production in the lake states - Michigan, Minnesota, and Wisconsin- advanced from 4.74 million cords in 1977 to 4.91 million cords in

1978. Pulpwood production is shown by county and species group for these three states.

414. 52 IVC3B RESCH H., PARKER R. Heat Conditioning of Veneer Blocks. Research Bulletin 29, Oregon State Univ., School of Forestry (1979), 33 pages. Short-term heating of softwood veneer blocks temporarily softens the wood so that it can be peeled more readily. An infrared sensor system reported here gives industry a tool to monitor block temperature. The profitability of conditioning will depend on the cost of the installation and cash from increased veneer yields.

415. 52 IVC4 ALBANIS K., COOPER R.J. "Residue Production by Home-Grown Sawmills in England and Wales." Forestry and British Timber, Vol. 8, No. 1 (1979), pages 20-22. Figures for softwood, hardwood, mixed and total residue production by residue type and region. Markets for different types of residue.

416. 52 IVC4 MOCK H.P., STEGMANN G. "Potential of Industrial Wood Wastes in the Federal Republic of Germany." Forstariv 1, (1979), pages 1-8. In German. Availability and possible uses of residues from wood industries in the F.R.G. Use of wood residues within the industries is well elaborated and could be improved further. Forecasts of the availability up to 1990 and some medium and longterm proposals are made. A summary of the results of a study worked out for the Federal Department of Research and Technology, "Potential of Plant Residues, Especially Wood Wastes from Wood Industries, for the Production of Chemical Raw Materials" 65 p., 1978.

417. 52 IVC4 Wood Residues. Ecole Nationale du Genie Rural des Eaux et Forêts, Nancy: ENGREF. (1979), 26 pages. In French. Available volume and prospects of using bark, sawdust, and logging residues.

418. 52 IVC7 VUILLAUME D. Analysis of the French Furniture Industry: Its Production, Consumption, and Foreign Trade. Dissertation - M.A. Faculty of Law and Economic Science, Nancy, France. (1978), 341 pages. In French.

419. 52 IVC8 BENNETT PORTER B. Guide to Energy Specialists, 1979. Center for International Environment Information (1979), 138 pages. From a review by Monroe Bush in American Forests, Vol. 86,

No. 1. One thousand specialists working in all fields of energy development are listed in the guide. Includes forestry waste utilization. The guide also includes an ongoing computerized update service.

420. 52 IVC8 BOSSEL ULF. Wood as Fuel. Solentec, Corporation for solar and energy-saving technologies, Adelebsen. (1980), 202 pages. In German. Report of a meeting treating the use of wood and straw as fuel material. Ten papers discuss the potential supply and utilization of wood and other biomass as fuel, their particularities in being burned, economic questions, and show existing and potential solutions of several wood using heating systems.

421. 52 IVC8 CAMPBELL J. "Wood Energy." Forestry and British Timber, Vol. 8, No. 2 (1979), Pages 38-40. Possibilities for using more wood for heating and drying in rural industries, adjacent to forest areas in Britain. Wood and wood residue burning and the production of ethanol from wood. Wood for fuel might come from forest residues, scrub woodland, and industrial residues.

422. 52 IVC8 PERELL RAYMOND S. Wood: an Energy Source for the Southern Appalachian Highlands. Proceedings of a workshop held Nov. 30 - Dec. 1, 1978 at Asheville, North Carolina. (1979). Topics covered: (1) Inventory and supply, (2) harvesting and delivery systems, (3) management techniques, (4) environmental effects, (5) governmental regulations and incentives, (6) competitive interactions with other land uses, fuels and products.

423. 52 IVC8 MORGAN G.P. "Energy Implications of the Expanded Planting Programs." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 189-197. The wood producing industry has the ability to supply the bulk of its energy needs from its own resources, using technology that is already available. Energy, with the possible exception of liquid fuels used in harvesting, need not be a constraint on the forest industry's growth.

424. 52 IVC8 KARCHESY JOSEPH, KOCH PETER. Energy Production from Hardwoods Growing on Southern Pine Sites. USDA Forest Service General Technical Report SO-24. (1979), 59 pages. Ways energy can be obtained from wood and the role that wood can play in supplying future energy needs.

425. 52 IVC8 KELSEY RICK G., SHAFIZADEH FRED, LOWERY DAVID

P. Heat Content of Bark, Twigs, and Foliage of Nine Species of Western Conifers. USDA Forest Service Research Note INT-261 (1979), 7 pages. Comparative combustion tests showed that bark, twigs, and foliage of nine commercial timber species in the Northern Rocky Mountains generally produce more heat than equal volumes of their ovendry wood and that these parts of harvested trees could be profitably utilized as a source of energy.

426. 52 IVC8 KITTO WILLIAM D. "A Technical and Environmental Appraisal of Wood Energy." Western Wildlands Vol. 5, No. 2 (1978-1979), pages 14-19. Discusses the use of mill residues to produce process steam for boilers in the forest products industry, use of logging residues as fuel, biomass energy farms, and environmental considerations.

427. 52 IVC8 MCGOVERN J. N. Wood Residues as a Supplementary Utility Boiler Fuel. Dept. of Forestry, Univ. of Wisconsin, Forestry Research Notes No. 229 (1979), 6 pages. Wood residues from sawmills in southwestern Wisconsin within economical trucking distance of Richland Center, Wis., could supplement the coal used in the spreader-stoker type of boiler in the city's 7.5 MW power plant. The wood residue fuel wood cost $1.00/million Btu in comparison with $2.00/million Btu for coal.

428. 52 IVC8 MURPHEY W.K., MASSEY J.G., SUMRALL A. "Converting Urban Tree Maintenance Residue to Energy." Journal of Arboriculture, Vol. 6, No. 4 (1980), pages 85-88. The feasibility of using residues from municipal tree maintenance and land clearing operations as fuel is examined in terms of dollars and net energy.This fuel chip market was developed as an alternative to landfilling this residue.

429. 52 IVC8 Energy and Chemicals from Wood. Alberta Energy and Natural Resources, ENR Report No. 50. (1979), 55 pages. This study was commissioned by Alberta Energy and Natural Resources to review current technology including recent studies completed for the government of Canada and the Province of Ontario, and to apply them to existing situations in Alberta to determine the practicality of utilizing available wood supplies either for energy generation or for chemicals.

430. 52 IVC9 DICKERHOOF H. EDWARD, MCKEEVER DAVID B. Particleboard, Medium-Density Fiberboard, and Mende

Process Board Plants in the United States - Capacity, Production, and Raw Material Trends, 1956-1976. USDA Forest Service Resource Bulletin FPL-6. (1979), 21 pages. Estimates of plant capacities for particleboard, medium-density fiberboard, and waste process board plants, and location and type. Production trends and raw material requirements for particleboard are also included.

431. 52 IVC9 HARPOLE GEORGE b. "Economic Models for Structural Flakeboard Production." Forest Products Journal, Vol. 29, No. 12 (1979), pages 26-28. Announces the availability of two computer programs, PARVCOST and CFA; discusses the applicability of each program to economic and managerial problems; and summarizes the input and output characteristics of each.

432. 52 VA2 BUONGIORNO JOSEPH, CHOU JIEH-JEN, STONE ROBERT N. "A Monthly Model of the United States Demand for Softwood Lumber Imports." Forest Science, Vol. 25, No. 4 (1979), pages 641-655.

433. 52 VA2 FRANCIS G. J. "Future Use of British Timber." Scottish Forestry, Vol. 33, No. 4 (1979), pages 258-265. Address to Royal Scottish Forestry Society, Spring General Meeting, 1979. Author is head of harvesting and marketing division, Forestry Commission, Edinburgh.

434. 52 VA2 HARRIS R.A. "Need for Market Intelligence to Achieve Rational Development of Commercial Plantations." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 205-213. Expansion and development of New Zealand's exotic forest plantations cannot continue indefinately without careful reassessment of markets and end-use requirements. Claims of world shortages of wood that will ensure markets must be qualified in relation to the type, quality, and quantity of wood.

435. 52 VB1 ALLAN L.S. "Marketing of New Zealand's Forestry Products." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 214-216. The surplus of forestry products in New Zealand which will become available from the late 1980's onwards means that markets will have to be investigated and exploited fully.

436. 52 VB1 BANDROWSKI S.S., STANTON CHARLES R. "GATT Talks Could Mean Boost for Forest Products Exports." Canadian Forest Industries, Vol. 100, No. 1 (1980), pages 19-20, 56. Generally beneficial

effects which accrued to the forest products trade as a result of the Kennedy Round should expand as the succeeding Tokyo Round of the General Agreement on Tariffs and Trade (GATT) begins to take hold.

437. 52 VB1 DARR DAVID R., LINDELL GARY R. "Prospects for US Trade in Timber Products." Forest Products Journal, Vol. 30, no. 3 (1980), Pages 17-21. An assessment of trade prospects is necessary for the identification of market opportunities for both public and private sectors. It is also of importance for reviewing our trade policy options with respect to domestic prices and employment, balance of payments, our relations with trading partners, and our national security. Finally, it is necessary for judging the adequacy of our domestic timber and supply programs.

438. 52 VB1 PRICE COLIN. "Terms of Trade and Forest Products." Commonwealth Forestry Review, Vol. 58, No. 4 (1979), pages 235-242. Because increasing the supply of a commodity affects its price, expansion of export volumes may be accompanied by declining foreign exchange earnings to developing countries. Arguments for ignoring the effect are fallacious. Its distributive consequences are inequitable. By examining the determinants of price elasticity of demand, analysts may gauge the relevance of the effect for forest products. Production for home markets or development of timber processing may circumvent the problem.

439. 52 VB1 TOLOUP A. "French Imports and Exports of Timber, Lumber, and Wood Products." Revue Forestière Française, Vol. 30, No. 4 (1979), pages 323-353. Analysis of the development of trade to and from France. First part deals with general features of trade, second part stresses the picture in 1977 and gives some views on the future.

440. 52 VB1 Food and Agriculture Organization of the United Nations 1978 Yearbook of Forest Products, 1967-1978. FAO Forestry Series. (1980), 428 pages. In English, French, and Spanish. Tables are arranged in three parts: (1) volume of production and the volume and value of trade, (2) direction of trade, (3) unit value in trade of some commodities.

441. 52 VB1 The Impact of Hardwood Exports on the French Domestic Market. Center for the Study of Forest Economics. Paris: National Forestry Federation. (1979), 379 pages. In French. Comprehensive picture of French hardwood exports, with a

questionnaire enquiry of the exporting business, and an assessment of the exports impact on the volume harvested and on wood procurement in the transforming industries. A series of suggested changes is put forward.

442. 52 VB3 DARR DAVID R. "Softwood Log Export Policy: The Key Questions." Journal of Forestry, Vol. 78, No. 3 (1980), pages 138-140. The softwood log export issue has been debated for several decades and the discussion will probably continue into the future. Proposals to "solve" the issue should be reviewed carefully in terms of their assumptions about market responses to a change in policy.

443. 52 VB3 TAKAGI TADAO. "National Forest Timber Sales and Distribution; Local Impacts." Forest Economy, Vol. 32, No. 10 (1979), pages 1-10. In Japanese. Supply, demand, distribution, markets, and local impacts of the use of Aomori-Hiba, a Japanese cypress.

444. 52 VB4 LOUW VAN WYK J. "Marketing - the Potential for Plywood." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 222-225. Because New Zealand has the ability to grow large, pruned, radiata pine logs suitable for rotary peeling on relatively short rotation, it has a real competitive advantage in the production of plywood.

445. 52 VB5B COWAND JOHN. "Why Southern Pine Is Here to Stay." Pulp and Paper International, Vol. 22, No. 2. (1980), pages 60-63. Southern pine pulp, from the U.S. South, will be one of the world's main sources of long fiber for many years. Though most of this fiber is currently consumed in the U.S.A., greater quantities are being exported, and with correct treatment, particularly in refining, it can be used to make just about any grade of paper or board.

446. 52 VC BERTRAM I.G., O'BRIEN M. "Optimal Pricing Policy and Indigenous Forest Management in New Zealand." New Zealand Journal of Forestry, Vol. 24, No. 2 (1979), pages 261-277. Conclusions: indigenous forestry is a sector in which market failure is generally recognized to be inevitable; government intervention in the past has not been designed to cope with major elements of this market failure; the main result of past policies has been to bias prices in a direction which encourages overexploitation of the resource; although improvements in the present pricing system are

urgently needed (e.g., some form of conservation levy), the general philosophy of government and the Forest Service concerning conservation will be the crucial factor in determining the future of New Zealand forests.

447. 52 VC1 RANDERS J. "What Happens When the Price of Timber Increases?" Norsk Skogindustri, Vol. 33, No. 2 (1979), pages 37-41. In Norwegian. The effect of various remedies proposed to combat the stagnation in wood industry and forestry are analyzed in the framework of world prices and the social problems of maintaining employment. None of the policies advanced are shown to reduce the decline in employment in forest industries and logging in the long run.

448. 52 VC1 Food and Agriculture Organization of the United Nations. Forest Products Prices, 1960-1978. FAO Forestry Paper. (1980), 79 pages. In English, French, and Spanish. Contains 453 series of prices. Of these, 312 relate to roundwood, sawnwood and woodbased panels, including 142 of tropical logs and sawnwood, and 103 to pulp, paper and paperboard. Series are contributed by 52 countries.

449. 52 VC2 CAMOUS CHRISTIAN J. A Method for Studying the Determination of and Short-term Forecasting of Stumpage Price. Paris: Business Department of the National Forests Office. (1979), 88 pages. In French and English. Analysis of stumpage price determination at auction sales with a suggested method for an econometric study of the factors influencing price, and a survey of literature. Fifty entries bibliography.

450. 52 VC2 CAMOUS CHRISTIAN J. The Price of Oak Stumpage and Lumber in France, an Econometric Study. Paris: Business Department of the National Forests Office. (1980), 50 pages. In French. (1) Quarterly model of price of lumber, 1974 to 1979; (2) Annual model of the stumpage price of oak, 1963 to 1979. Emphasis on determining the factors affecting oak prices.

451. 52 VC2 HUTCHINS CECIL C. JR. Pulpwood Prices in the Southeast, 1978. USDA Forest Service Research Note SE-287 (1979), 3 pages. The pulp industry in the Southeast paid $883.9 million for wood fiber in 1978, almost 9 percent more than in 1977. Roundwood pulpwood prices increased to averages of $36.25 for softwood and $28.15 for hardwood per standard cod. Costs per ton of green chips increased 4.3 percent to

$15.90 for softwood and 3.9 percent to $12.00 for hardwood. Sawdust prices continued to fluctuate, with softwood prices down 13.2 percent and hardwood up 6.9 percent.

452. 52 VC2 JACKSON DAVID H., MCQUILLAN ALAN G. "A Technique for Estimating Timber Value Based on Tree Size, Management Variables, and Market Conditions." Forest Science, Vol. 25, No. 4 (1979), pages 620-626. Based upon revealed market preferences for timber, the authors developed an empirical stumpage valuation model for three ranger districts of the Lolo National Forest. The equation suggests how tree diameter, volume per acre harvested, reproduction systems utilized, logging systems employed, and market conditions affect the selling value of timber. Of particular importance is the method developed which shows the effect of the mix of tree diameters in each sale on sale value.

453. 52 VC3 MAJANI BERNARD. "Pulp Prices-A Plea for Stability." Pulp and Paper International Vol. 22, No. 1 (1980), pages 45-46, 51. Market pulp prices have fluctuated far too erratically over the past twenty-five years without giving the desired levels of profitability to producers. A period of price stability is needed to permit papermakers and paper customers to plan their businesses better.

INDEX

This index is best used in conjunction with the Subject Matter Classification Scheme at the front of this issue. For example, if the user enters the index at Administration, forest, he is referred to Section III of the bibliography, because to be more specific would require subdividing the topic essentially as the Classification Scheme does. The user's next step is to turn to the Scheme, where he finds that forest administration in general is IIIA1, administration pertaining to forest roads is IIIC, and so on.

Absenteeism, IIA4

Accounting (see Planning and plan)

Acreage (see Area)

Administration
  forest, III
  forestry program, IC
  personnel, IIA
  professional, subprofessional affairs, IF
  research, IE

Advertising, V

Aesthetic values, IIIA5g

Afforestation, IIIB3

Africa
  forestry at large, IB5
  manufacturing, IVA1e
  (see also Union of South Africa)

Allowable cut, IIIB5

Alternatives
  genetic production, IIIE
  manufacturing, IVA4

Amenities (see Aesthetic values)

Appraisal (see Valuation)

Area
  forestry at large, IB

Area (continued)
  land, IIC
  ownership, IIB
  policy, program, IC

Argentina
  forestry at large, IB4
  manufacturing, IVA1d

Asia
  forestry at large, IB5
  manufacturing, IVA1e
  (see also China; Japan; Taiwan; USSR)

Assessment (see Valuation)

Auction (see Market and marketing)

Australia
  forestry at large, IB4
  manufacturing, IVA1d

Balloon logging, IVB

Bark, IVC4
  demand, VA
  harvesting, IVB
  manufacturing, IVC4
  marketing, VB6
  price, VC3
  transportation
    harvesting, IVB4
    marketing, VD

Behaviour of the individual, ID5

Board
  building (see Pulp and paper)

Board (continued)
composition (see Composition board)
paper (see Pulp and paper)

Boards (see Lumber)

Bond, IID2

Box (see Lumber; Pulp and paper)

Brashing, IIIB4

Budget
forestry at large, IID1
genetic production, IIIE
manufacturing, IVA4

Building (see Construction)

Building board (see Pulp and paper)

Burning (see Fire)

Business
forestry at large, IB
genetic production, IIIE
manufacturing, IVA4
principles, IA

Buyer
commodity, VB
demand, VA
land, IIC3

Camping, IIIA5h

Canada
forestry at large, IB2
manufacturing, IVA1b

Canoeing, IIIA5h

Capital, IID
gain, ID1c
genetic production, IIIE
manufacturing, IVA4

Caribbean
forestry at large, IB5
manufacturing, IVA1e

Cellulose (see Pulp and paper)

Charcoal, IVC8
demand, VA
manufacturing, IVC8
marketing, VB6
price, VC3
transportation, VD

Chile
forestry at large, IB4
manufacturing, IVA1d

China
forestry at large, IB3
manufacturing, IVA1c

Chipboard (see Composition board)

Chipping (see Pulpwood and chips; Naval stores)

Chips (see Pulpwood and Chips)

Christmas trees and greens, IIIA2
demand, VA
genetic production, IIIA2
marketing, VB7
price, VC3
transportation
harvesting, IVB4
marketing, VD

City forest (see Forest)

Collateral,IID2

Competition
forest use, IIIA1
land, IIC
market, VB
silviculture, IIIB

Composition board, IVC9
demand, VA
manufacturing, IVC9
marketing, VB4
price, VC3
transportation, VD

Conservation
land, IIC3
policy, IC
resource owner, IIB

Conservation (continued)
saving, IID1
social interest, ID4

Construction, IVC10
demand, VA
manufacturing, IVC10
marketing, VB8
price, VC3

Consumer and consumption, VA

Continuing education, IF

Cooperative association
forestry at large, IIB
manufacturing, IV
marketing, VB

County forest (see Forest)

Credit, IID2

Crosstie, IVC6
demand, VA
logging, IVB
manufacturing, IVC6
marketing, VB6
price, VC3
transportation
logging, IVB4
marketing, VD

Curriculum, IF

Custom, ID4

Cutting, IVB
cyle, harvest, IIIB5
intermediate, IIIB4

Data processing
genetic production, IIIE
manufacturing, IVA4

Debarking
harvesting, IVB3
manufacturing, IVC4

Decay, IIID4

Decision making (see Planning and plan)

Decorative product, IVD1
(see also Christmas trees and greens)

Demand, VA
capital, IID1
foreign trade, VB
labor, IIA1
land, IIC1
marketing, VB
professional, subprofessional, IF
recreation, IIIA5d

Depletion
income tax, ID1c
regional resources, IB

Depreciation, IVA4

Development
genetic production, III
principles, IA
regional
forestry at large, IB
manufacturing, IVA1
social, IG

Dimension (see Lumber)
stock (see Lumber)

Directory
wood industry, IVA2

Discount (see Capital)

Disease, IIID4

Distribution
land, IIC
market transportation, VD
marketing, VB
regional resources, IB

Driving
recreation, IIIA5h
river, IVB4

Earnings
capital, IID1

Earnings (continued)
genetic production, IIIE
investment, IID1
labor, IIA3
managerial, ownership, IIB
manufacturing, IVA4
professional, subpro., IF
valuation, ID2

Economics, IA
(see also Development)

Education, IF
(see also Training)

Elasticity (see Demand; Supply)

Employment
labor, IIA1
professional. subprofessional, IF

Energy, IB
demand, VA
genetic production, IIIB
manufacturing, IVC8
marketing, VB8

Enterprise, IIB

Entrepreneur, IC
land planner, IIC3
owner, manager, IIB

Environmental concern, IH
(see also Aesthetics;
Technology)

Erosion, IIIA6

Europe
forestry at large, IB3
manufacturing, IVA1c

Export, V

Farm forest (see Forest)

Fee
grazing, VC3
recreation, IIIA5d
simple
land tenure, IIC3
law, IC
ownership, IIB

Felling (see Cutting)

Fertilization, IIIB2

Fibreboard (see Composition
board)

Finance (see Tax; Valuation;
Insurance; Capital)

Fire
control, damage, loss, IIID1
prescribed, IIID2

Firewood, IVC8
demand, VA
logging, IVB
manufacturing, IVC8
marketing, VB6
price, VC3
transportation
logging, IVB4
marketing, VD

Fish, IIIA7
(see also Recreation)

Flakeboard, IVC9

Flood, IIIA6

Flooring (see Lumber)

Folklore, ID4

Forage (see Rangeland)

Forecasting and forecast
consumption, VA2
forestry at large, IB
genetic production, IIIE
manufacturing, IVA4
principles, IA

Forest, IB
conversion, IIIB
genetic production, III
land market, IIC3
owner, manager, IIB
policy, program, IC

Forest Service, IIB2

Forest Survey
finding (see Regional resources)
method
genetic production, IIIE
land, IIC4

Forester and forestry
owner, manager, IIB
policy, Program, IC
professional, subprofessional, IF
social characteristics, IA
urban, IIIA8

Freight (see Transportation)

Fringe benefit, IIA3

Fuelwood (see Firewood; Energy)

Fume damage, IIID4

(see also Environmental concern)

Furniture, IVC7
demand, VA
manufacturing, IVC7
marketing, VB6
price, VC3
transportation, VD

Futures, VB2

Genetic production, III
tree improvement, IIIB3

Goal
forest, IIIE
manufacturing, IVA4
regional or national consumption or production, VA2
society or economy, IA

Government
forest and forestry, IIB2
planning, VA2
policy, IC
tax, ID1

Grazing (see Rangeland)

Greens (see Christmas trees and greens)

Growing stock, IIIB5
(see also Area)

Growth, timber, IIIB
(see also Development)

Gum (see Naval stores)

Hardboard (see Comp. board)

Harvest
game, IIIA7
(see also Recreation)
Silvicultural aspect
cutting cycle, harvest cutting, IIIB5
intermediate cutting, IIIB4
timber, IVB

Hauling (see Transportation)

Hedging, VB2

Hewn tie (see Crosstie)

Hiking, IIIA5h

History
consumption, VA1
forestry at large, IB
wood industry, IVA3

Horseback riding, IIIA5h

Housing (see Construction)

Human relations, ID4

Hunting, IIIA7

Ice damage, IIID4

Import, V

Incentive
forest owner, IIB3
genetic production, IIIE
labor, IIA3
manufacturing, IVA4
silvicultural practice, IIIB

Industry
logging, IVB
wood manufacturing, IV

Input-output
genetic production, IIIE
manufacturing, IVA4
regional resources, IB

Insect, IIID3

Insulation board (see Composition board)

Insurance
accident, IIA4
property, ID3

Integrated forestry, IIIA1
land use, IIC

Interest (see Capital)
(see also Social interest)

Inter-industry analysis (see input-output)

International trade, V

Inventory
data (see Area)
method
genetic production, IIIE
land, IIC4

Investment (see Capital)

Irrigation, IIIB2

Israel
forestry at large, IB3
manufacturing, IVA1c

Japan
forestry at large, IB3
manufacturing, IVA1c

Kraft (see Pulp and paper)

Labor, IIA
(see also Forester and forestry)

Land, IIC
(see also Owner and ownership)

Landscaping (see Aesthetics)

Latin America
forestry at large, IB5
manufacturing, IVA1e
(see also Argentina; Chile)

Law
forestry at large, IC
land, IIC3

Lease (see Owner and ownership)

Legislative history
forestry at large, IC
land, IIC3

Leisure (see Recreation)

Lieu payment, ID1b

Linear programming
genetic production, IIIE
manufacturing, IVA4

Livestock (see Rangeland)

Loading and unloading (see Transportation)

Loan, IID2

Location theory, IA
(see also Regional resources; Transportation)

Log (see Stumpage and log)

Logging (see Harvest)

Lumber, IVC1
demand, VA
manufacturing, IVC1
marketing
cash, VB4
futures, VB2
price, VC3
transportation, VD

Management
forest, III
land, IIC
manufacturing, IV
multipurpose, IIIA1
personnel
labor, IIA

Management
personnel (cont.)
professional, subprofessional, IF
recreation, IIA5c

Manager, IIB
policy, program, IC
(See also Management)

Manpower
labor, IIA
professional, subprofessional, IF

Maple product, IVD3
demand, VA
genetic production, IIIA4
manufacturing, IVD3
marketing, VB8
price, VC3
transportation
harvesting, IIIA4
marketing, VD

Mapping (see Location)

Market and marketing
commodity, V
labor, IIA
land, IIC3
recreation, IIIA5d

Mexico
forestry at large, IB5
manufacturing, IVA1e

Millwork (see Lumber)

Mine timber, IVC5
demand, VA
logging, IVB
manufacturing, IVC5
marketing, VB6
price, VC3
transportation
logging, IVB4
marketing, VD

Mining
damage by (see Environmental concern)
wood used in (see Mine timber)

Mobile home (see Construction)

Model
genetic production, IIIE
manufacturing, IVA4

Multiple use
forest, IIIA1
land, IIC

Municipal forest (see Forest)

National forest (see Forest)

National park
owner, manager, IIB2b
policy, program, IC
(see also Recreation)

Nature study, IIA5h

Naval stores, IVD2
demand, VA
genetic production, IIIA4
manufacturing, IVD2
marketing, VB8
price, VC3
transportation
harvesting, IIIA4
marketing, VD

Near East
forestry at large, IB5
manufacturing, IVA1e
(see also Turkey, Israel)

New Zealand
forestry at large, IB4
manufacturing, IVA1d

Newsprint (see Pulp and paper)

Noise abatement, IH
(see also Technology)

Nondeliberated decision, ID4

Operations research
genetic production, IIIE
manufacturing, IVA4

Outdoor recreation (see Recreation)

Owner and ownership, IIB
land, IIC3
policy, program, IC

Pacific islands
forestry at large, IB5
manufacturing, IVA1e

Pallet (see Lumber)

Panel (see Composition board; Veneer and plywood)

Paper (see Pulp and paper)
board (see Pulp and paper)

Park, IIIA5e
owner, manager, IIB
policy, program, IC
urban forestry, IIIA8

Particleboard (see Composition board)

Personality, ID5

Personnel
labor, IIA
professional, subprofessional, IF

Pests, IIID

Picnicking, IIIA5h

Piling as a product, IVC5
demand, VA
logging, IVB
manufacturing, IVC5
marketing, VB6
price, VC3
transportation
logging, IVB4
marketing, VD

Piling as an operation
labor, IIA
manufacturing, IV

Pit prop (see Mine timber)

Planing mill (see Lumber)

Planning and plan
consumption or production goal, VA2

Planning and plan (cont.)
forestry at large, IC
genetic production, IIIE
land, IIC3
manufacturing, IVA4

Plantation and planting, IIIB3

Plastic (see Pulp and paper)

Plywood (see Veneer and plywood)

Pole, IVC5
demand, VA
logging, IVB
manufacturing, IVC5
marketing, VB6
price, VC3
transportation
logging, IVB4
marketing, VD

Poletimber
genetic production, IIIB
logging, IVB
marketing, VB3
price, VC2
regional sources, IB

Policy and politics
forestry at large, IC
land, IIC3

Pollution (see Environmental concern)

Post, IVC5
demand, VA
logging, IVB
manufacturing, IVC5
marketing, VB6
price, VC3
transportation
logging, IVB4
marketing, VD

Prediction (see Forecasting and forecast)

Prescribed burning, IIID2

Preserve (see Reserve)

Price (see Valuation)
reporting, VC4

Procurement, VB
raw material
logging, IVB
manufacturing, IVC

Production
agent, II
general trend and prospect, VA
genetic, III
manufacturing, IV
principles, IA
regional resources, IB

Productivity
forest, IIIB2
labor, IIA3
logging, IVB
manufacturing, IVC
professional, subprofessional, IF

Profit
entrepreneurial, IIB
genetic production, IIIE
investment, IID1
manufacturing, IVA4
valuation, ID2

Program in forestry, IC

Projection (see Forecasting and forecast)

Protection, IIID

Pruning, IIIB4

Public interest, ID4
forestry at large, IC
land, IIC3

Public relations, ID6
policy, program, IC

Pulp and paper, IVC2
demand, VA
manufacturing, IVC2
marketing, VB5
price, VC3
transportation, VD

Pulpwood and chips
as raw material, IVC2c
(see also Utilization)

Pulpwood and chips (cont.)
demand, VA
logging, IVB
marketing, VB5b
price, VC3
transportation
logging, IVB4
marketing, VD

Railroad (see Transportation)
tie (see Crosstie)

Rangeland, IIIA3
grazing fee, VC3
management, IIIA3
(see also Area)

Real estate, IIC
ownership, IIB
tax, ID1b

Recreation, IIIA5
fee, IIIA5d
integrated forestry, IIIA1
price, IIIA5i
(see also Wildlife)

Recruitment
labor, IIA1
professional, subprofessional, IF

Recycling (see Utilization)

Reforestation, IIIB3

Regeneration, IIIB3

Regional resources
manufacturing
industry at large, IVA
logging, IVB1
other forest industry, IVD
other manufacturing, IVC
(see also Area)

Regional science, IIC4

Regulation
forest practice legislation, IC
land use, IIC3
timber, IIB5

Removals
consumption-production relationship, VA
manufacturing, IV
regional resources, IB
(see also Harvest)

Requirements
long-term, VA2
short-term (see Regional resources)

Research, IE

Reserve
land use, IIC3
policy, IC
public, IIB2
recreation, IIIA5
regional, IB
wildlife, IIIA7

Residue
logging, IVB3
manufacturing, IVC

Retailer, V

Return (see Earnings)

Road (see Transportation)

Rosin (see Naval stores)

Rotation, IIIB5

Roundwood (see Stumpage and log)

Runoff
erosion, IIIA6
integrated forestry, IIIA1

Safety, IIA4
(see also Technology)

Salary
managerial, IIB
professional, subprofessional, IF

Salvage
damage, IIID
logging, IVB

Sap (see Maple product)

Sawlog, IVC1d
demand, VA
logging, IVB
marketing, VB3
price, VC2
tranportation
logging, IVB4
marketing, VD

Sawmill, IVC1

Sawnwood (see Lumber)

Sawtimber
genetic production, IIIB
logging, IVB
marketing, VB3
price, VC2
regional resources, IB

Securities (see Capital)

Seed orchard, IIIB3

Seeding, IIIB3

Seller, VB
land, IIC3

Shelterbelt, IIIA6

Shipping, (see Transportation)

Siltation
erosion, IIIA6
integrated forestry, IIIA1

Silviculture, III

Site quality, IIIB2

Skidding, IVB4

Sleeper (see Crosstie)

Small holding, IIB3c

Social interest, ID4
forestry at large, IC
land, IIC3

Sociology, IA

Soil, IIIA6
integrated forestry, IIIA1
site quality, IIIB2

South America (see Latin America)

Species
tree, IIIB1

Sportsman, IIIA7
(see also Recreation)

Squares (see Lumber)

State forest (see Forest)

Statistics
finding (see Regional resources)
method
genetic production, IIIE
land, IIC4

Stocking
fish and game, IIIA7
integrated forestry, IIIA1
timber, IIIB5

Storm damage, IIID4

Stumpage and log
demand, VA
logging, IVB
marketing, VB3
price, VC2
transportation
logging, IVB4
marketing, VD

Stump, IVD2
(see also Harvest)

Substitute for wood, VA

Supply
capital, IID2
forest resources generally, IIA1
forest and products generally, IB
foreign trade, VB
labor, IIA2
land, IIC1
log, IVB

Supply (cont.)
manufactured wood product, IVC
marketing, VB
nontimber forest resources, IIIA
professional, subprofessional, IF
timber, IIIB
tree product, IVD

Sustained yield, IIIB5
nontimber product, IIIA

Switchtie (see Crosstie)

Taiwan
forestry at large, IB3
manufacturing, IVA1c

Tapping (see Maple product)

Tariff, VB

Tax, ID1
ad valorem property, ID1b
assessment, ID2

Teaching
labor, IIA3
professional, subprofessional, IF

Technician, IF

Technology
consumption, VA3
genetic production, III
labor, IIA3
manufacturing, IV
marketing transportation, VD

Tenure (see Owner and ownership)

Thinning, IIIB4

Tie (see Crosstie)

Timber
genetic production, III
manufacturing, IV
regional resources, IB
(see also Stumpage and log)

Timbers (see Lumber)
mine (see Mine timber)

Trade, V

Trail, IIIC
(see also Recreation)

Training
labor, IIA3
professional, subprofessional, IF

Transportation
forest management, IIIC
logging, IVB4
manufacturing, VD
marketing, VD

Tree
improvement, IIIB3
species, IIIB1

Trucking (see Transportation)

Turkey
forestry at large, IB3
manufacturing, IVA1c

Turnover, IIA4

Turpentine (see Naval stores)

Unemployment
labor, IIA1
professional, subprofessional, IF

Union of South Africa
forestry at large, IB4
manufacturing, IVA1d

Union, IIA2

United States
forestry at large, IB2
manufacturing, IVA1b

Urban forest (see Forest)

Urban forestry, IIIA8

USSR
forestry at large, IB3
manufacturing, IVA1c

Utilization
logging, IVB3
manufacturing, IVC

Valuation
damage, IIID
data, VC
land, IIC3
method, ID2
policy, program, IC
tax assessment, ID1
value system, ID4

Veneer and plywood, IVC3a
demand, VA
log, IVC3c
manufacturing, IVC3
marketing
cash, VB4
futures, VB2
price, VC3
transportation, VD

Vocational education
labor, IIA3
professional, subprofessional, IF

Volume (see Timber)

Wage and wage rate, IIA3

Wallboard (see Composition board)

Waste (see Utilization)

Water and watershed, IIIA6
integrated forestry, IIIA1

Weeding, IIIB4

Weight (see Timber)

Wholesaler, V

Wilderness, IIIA

Wildfire, IIID1

Wildlife, IIIA7
(see also Rangeland; Recreation)
damage by, IIID4

Wind damage, IIID4
soil erosion, IIIA6

Wood (see Timber)

Woodland (see Forest)

Woodlot, IIB3c

Woodpulp (see Pulp and paper)

Woods (see Forest)

Work, IIA1
professional, subprofessional, IF

Workmen's compensation, IIA4

Yarding, IVB4

Zoning, IIC3

AUTHOR INDEX

Reference is to citation number.

ALBANIS K.
415
ALLAN DAVE R.
410
ALLAN L.S.
435
ALWARD GREGORY S.
383
ANDERSON GEORGE A.
278
ANDRESEN J.W.
357
ANTSUKEVICH O.N.
268
BACHELARD E.P.
239
BACKER W.
279
BAGNARESI U.
252
BAKER JAMES B.
306
BALMER WILLIAM E.
320
BANCROFT C.
325
BANDROWSKI S.S.
436
BARDY D. A.
293
BARE B. BRUCE
314
BARRETT MICHAEL K.
217, 224, 225
BEAZLEY RONALD I.
265
BEHLEN DOROTHY.
324
BELL ENOCH F.
317
BENNETT PORTER B.
419
BERNAUER BERNHARD.
310
BERTRAM I.G.
446
BETHEL JAMES S.
311
BETOLAUD YVES
253
BEVINS MALCOLM I.
345
BIEBELRIETHER HANS
235
BLYTH JAMES E.
413
BONNER G.M.
214
BOSKOS L.
269
BOSSEL ULF.
420
BOWES MARIANNE
352
BOYCE STEPHEN G.
218
BOYD KENNETH G.
407
BRIGGS CHARLES W.
266
BROOKES MARTHA H.
380
BRYAN HOBSON.
330
BUHYOFF GREGORY J.
386
BUONGIORNO JOSEPH
432
BURCH WILLIAM R. JR.
346
BURNETT G. WESLEY
332
BURNS PAUL Y.
318, 319
BURSCHEL PETER
235
BUTTOUD G.
303
CAMOUS CHRISTIAN J.
449, 450
CAMPBELL J.
421
CAMPBELL ROBERT W.
380
CARRON L.T.
240
CAVANA R.Y.
315
CHENG C.
211
CHOU JIEH-JEN
432

CHUNG DAE KYO.
280
CLAWSON MARION.
219
CONDON L.
382
CONDRELL WILLIAM K.
266
CONKLIN DAVID G.
332
CONLIN JOSEPH R.
294
CONNAUGHTON KENT P.
317
COONEY JERRY W.
396
COOPER R.J.
415
CORRIE J.
226
COST NOEL D.
210
COTTELL P.L.
289, 290
COUPAL JAMES E.
273
COWAND JOHN.
445
CRANDALL RICK.
340
CRIM SARAH A.
383
CUTLER M. RUPERT.
334
DANA SAMUEL TRASK
254
DANIEL TERRY C.
341
DARR DAVID R.
437, 442
DAUBER VON E.
405
DAVIES JOHN.
227
DICKERHOOF H. EDWARD
430
DIEMER G.
245
DRIVER B.L.
341
DU TOIT C.W.H.
286
DUVENDECK JERRY P.
343
DWYER JOHN F.
352
DYER A. ALLEN
383
EDWARDS P. N.
367
EISENHAUER G.
281
EKLUND RISTO
399
ELLEFSON PAUL V.
390
ELLIOTT G.K.
391
ELOVIRTA P.
295
ERICKSON DAVID L.
312
ESPESETH B.D.
331
ESSEX BURTON L.
309
EUNG HYOUK CHO.
307
FAIRFAX SALLY K.
254
FEELY J.E.
400
FERELL RAYMOND S.
422
FIELD RICHARD C.
384
FLORENCE B.G.
241
FORSTER B.
335
FORTSON JAMES C.
384
FOSTER RUSSELL J.
347
FRANCIS G. J.
433
FRISK TORSTEN.
401
FUKUSHINA YASUKI.
228
GEMMER THOMAS V.
274
GERKE RUDOLF.
381

GERMISHUIZEN P.J.
282
GIBBS KENNETH C.
348, 350
GODIN V.B.
336
GOMEZ GUSTAVO.
411
GOODWIN J. F.
291
GRANT R.K.
242
GRAYSON A. J.
367
GUILLON PIERRE.
392
GULBRANDSEN K.
404
HAMILTON DAVID A. JR.
385
HARGREAVES L.A.JR.
264
HARPOLE GEORGE B.
431
HARRINGTON T.A.
306
HARRIS R.A.
434
HART C.
229
HAY MICHAEL J.
353
HEADLEY J.C.
300
HEAPS TERRY
371
HEIKINHEIMO L.J.
255
HEINRICHES JAY.
337
HELLIWELL D.R.
342
HENDEE JOHN C.
276
HENDRICKS ROBERT H.
300
HODGSON T.J.
362
HOF JOHN GERRIT
383
HOF JOHN GERRIT.
326
HORGAN G.P.
423
HØSTELAND JOHN E.
233
HOYER REINHOLD.
327
HU SHIH-CHANG
318, 319
HUGHES JEFF D.JR.
220
HUGUET LOUIS.
212
HULETT STANLEY W.
304
HULL CARY W.
398
HULTMAN SVEN.
358
HUOT JEAN.
355
HUSCROFT KEVIN.
290
HUTCHERSON KATE.
305
HUTCHINS CECIL C. JR.
451
JACKSON D.A.
292
JACKSON DAVID H.
452
JACKSON EDGAR L.
347
JAJU W.D.
302
JAKES PAMELA J.
309
JEONG JWA JONG.
297
JOHNSON K. NORMAN
317
JULIO G.
376
KARCHESY JOSEPH
424
KEEGAN CHARLES E. III
389
KELERTAS R.A.D.
357
KELLY JAMES W.
383
KELSEY RICK G.
425

KIELY-BROCATO KATHLEEN A.
386
KIM KAP DUK
307
KING K.F.S.
209
KINNAIRD J.W.
322
KIO P.P.O.
313
KISHINE TAKURO
256
KISHINE TAKURO.
257
KITTO WILLIAM D.
426
KLOMP B.K.
323
KNIGHT HERBERT A.
210, 218, 221
KNOWLES R.L.
323
KOCH PETER.
368, 424
KOIKE MASAO.
369
KREUTZER K.
405
KREUTZER KARL.
406
KROTH WERNER
327
LABASTILLE ANNE.
338
LANGENAU EDWARD E. JR.
343
LAPAGE WILBUR F.
345
LAWRENCE PETER
290
LEHTO J.
275
LEISZ DOUGLAS R.
379
LEONARD R.E.
336
LEUSCHNER WILLIAM A.
386
LEVACK H.H.
243
LEWIS JOHN E.
329
LIN W.Z.
359
LINDELL GARY R.
246, 437
LOCKYER C.J.B.
296
LOEFFLER HANS.
215
LOMNICKI CRAIG.
350
LOUBSER A.A.D.
395
LOUW VAN WYK J.
444
LØVSETH T.
230
LOWERY DAVID P.
425
LYON L. JACK.
354
MAGILL ARTHUR W.
360
MAJANI BERNARD.
453
MAMMEN E.
231
MANNING G.H.
372
MANZINI E.
213
MASSENGALE MARTIN A.
311
MASSEY J.G.
428
MASSIE M.R.C.
372
MATER JEAN.
271
MATSUI MITSUMA.
232
MCCLURE JOE P.
210, 221
MCCONNELL KENNETH E.
353
MCGOVERN J. N.
427
MCKEEVER DAVID B.
430
MCLAUGHLIN BRIAN P.
333
MCLEAN ALASTAIR.
321

MCQUILLAN ALAN G.
452
MEI MARY A.
222
MEO JEAN.
253
MERRILL GARY O.
361
MILES JOHN
322
MISHRA J.
247
MIYABAYASHI S.
328
MOAK JAMES E.
363
MOORE W.C.
214
MOUTON B.
283
MULHERN TIMOTHY PRYOR.
258
MUNRO J.J.
284
MURPHEY W.K.
428
MUSSER WESLEY N.
351
MUTH ROBERT M.
276
MYOUNG KYU PARK.
285
NEHER PHILIP A.
371
NICHOLS LEN M.
352
NIESSLEIN ERWIN.
259, 301
NILSSON BERTIL.
399
NOCK H.P.
416
NOGUCHI TOSHIKUNI.
288
NOLOP BRUCE P.
316
NORMANDIN D.
374
OESTEN GERHARD.
277
OSARA N.A.
399
O'BRIEN M.
446
O'DEA D.J.
315
O'LAUGHLIN JAY
390
O'QUIN KAREN
343
P ARK TAE SIK.
387
PARKER R.
414
PLAISANCE G.
339
PLOCHMANN RICHARD
215, 235
POTVIN FRANÇOIS
355
POULSEN GUNNAR.
248, 272
PRICE COLIN.
438
PRIDDLE GEORGE B.
329
QUEIROLA LEWIS
350
RAČKO JOZEF.
388
RANDERS J.
447
RANDERS JØRGEN
233
REED F.L.C.
223
RESCH H.
414
ROEHLE HEINZ
327
ROZSNYAY Z.
260, 344
RUDD J.
372
SAKAI MASAHIRO.
364
SANDO RODNEY W.
377
SASSAMAN ROBERT W.
317
SAUDER BRENT
290
SCHROEDER WOLFGANG
235

SCHULTE U.
260
SCHULZ HORST.
235
SETH V.K.
302
SETZER THEODORE S.
389
SHAFIZADEH FRED
425
SHAPOSHNIKOVA L.A.
234
SHEPHERD K.R.
244
SHIOYA T.
328
SHUPE DOROTHY G.
217, 224, 225
SIMMONS FRED C.
402
SINGLETON PETER.
333
ŠKODA JÁN.
408
SMALL D.
298
SMITH W. BRAD.
413
SPENCER DAVID
265
SPENCER JOHN S. JR.
309
STANTON CHARLES R.
436
STARK R.W.
380
STEGMANN G.
416
STERN HORST
235
STONE ROBERT N.
432
SUMRALL A.
428
SUTHERLAND CHARLES F. JR.
267
TABOUSH P.
370
TAKAGI TADAO.
443
TALKAMO T.
393
TANN C.O.
365
TEDDER PHILIP L.
267
THOMAS JACK WARD.
356
TROTMAN I.G.
249
TULOUP A.
439
TURKEVICH I.V.
270
TUSTIN J.R.
323
UTZ KEITH A.
320
VAN DEUSEN PAUL.
363
VAN DOREN CARLTON S.
329
VAN HEES WILLEM W.S.
348
VÄYRYNEN S.
297
VENTER J.S.J.
403
VOLQUARDTS G.
236
VOS B.B.
282
VUILLAUME D.
418
WAGGENER THOMAS R.
314
WATSON WILLIAM F.
363
WHITE RANDLE V.
389
WIERSUM K.F.
250
WILCOX DANIEL P.
345
WILLIAMS MICHAEL.
397
WILLIAMSON GEORGE E.
316
WILSON CARL C.
379
WILSON J.
251
WINDHORST HANS-WILHELM.
216

WOBST H.
373
WOOD DONALD B.
378
WRIST PETER.
412
WU S.C.
375
YOO BYOUNG IL
285
YOUNG CHARLES R.
299
YOUNG GLEN
290
YOUNG ROBERT A.
340
ZEIMER ROD F.
351
ZOBEL BRUCE.
366
ZUBE ERVIN H.
341